

Appendix 5

DETAILED EMISSIONS CALCULATIONS

SHORT TERM EMISSIONS SUMMARY

ID	Emission Unit(s)	CO lb/hr	NOx lb/hr	SO2 lb/hr	PM lb/hr	PM10 lb/hr	VOC lb/hr	Pb lb/hr	HF lb/hr	H2SO4 lb/hr	Hg lb/hr
Combustion Sources											
S01	Unit 1 PC Boiler	782	365	462	198	198	18.8	0.092	5.04	17.7	0.13
S02	Unit 2 PC Boiler	782	365	462	198	198	18.8	0.092	5.04	17.7	0.13
S03	Unit 3 PC Boiler	782	365	462	198	198	18.8	0.092	5.04	17.7	0.13
S04	Reserved										
S05	Auxiliary Boiler (Distillate Oil-Fired)	14.7	36.7	0.57	18.4	18.4	1.10	--	--	0.022	--
Coal Handling Particulate Sources											
S06	Railcar Unloading Station	--	--	--	1.46	0.51	--	--	--	--	--
S07	Emergency Coal Pile	--	--	--	0.74	0.74	--	--	--	--	--
S08	Emergency Pile Reclaim	--	--	--	0.28	0.28	--	--	--	--	--
S09	Reserved										
S10	Stackout Transfer Point #2	--	--	--	2.71	0.95	--	--	--	--	--
S11	Active Pile #1	--	--	--	1.48	1.48	--	--	--	--	--
S12	Active Pile #2	--	--	--	1.48	1.48	--	--	--	--	--
S13	Active Pile Reclaim	--	--	--	0.57	0.57	--	--	--	--	--
S14	Reserved										
S15	Transfer Tower	--	--	--	0.57	0.57	--	--	--	--	--
S16	Reserved										
S17	Tripper Deck	--	--	--	2.85	2.85	--	--	--	--	--
S18	Inactive Pile	--	--	--	1.20	1.20	--	--	--	--	--
Ash Handling Particulate Sources											
S19	Reserved										
S20	Bottom Ash Transfer Point #1	--	--	--	0.012	4.3E-03	--	--	--	--	--
S21	Reserved										
S22	Bottom Ash Bunker	--	--	--	0.012	4.3E-03	--	--	--	--	--
S23	Bottom Ash Transfer Point #2	--	--	--	0.046	0.016	--	--	--	--	--
S24	Reserved										
S25	Bottom Ash Transfer Point #3	--	--	--	0.046	0.016	--	--	--	--	--
S26	Fly Ash Silos	--	--	--	1.20	1.20	--	--	--	--	--
S27	Fly Ash Mixing Station	--	--	--	0.57	0.57	--	--	--	--	--
S28	Fly Ash Transfer Point #1	--	--	--	0.049	0.017	--	--	--	--	--
S29	Reserved										
S30	Fly Ash Transfer Point #2	--	--	--	0.049	0.017	--	--	--	--	--
S31	Reserved										
S32	On-Site Disposal Facility	--	--	--	1.36	0.33	--	--	--	--	--
Carbon Handling Particulate Sources											
S33	Carbon Silo	--	--	--	0.60	0.60	--	--	--	--	--
Lime Handling Particulate Sources											
S34	Reserved										
S35	Lime Railcar Unloading Station	--	--	--	3.62	3.62	--	--	--	--	--
S36	Reserved										
S37	Lime Silo	--	--	--	1.20	1.20	--	--	--	--	--
Roadway Particulate Sources											
S38	Unpaved Roadway Travel	--	--	--	2.19	0.54	--	--	--	--	--
S39	Paved Roadway Travel	--	--	--	0.63	0.12	--	--	--	--	--
Emergency Diesel Engine Driven Engines											
S40-S43	Reserved										
S44	Emergency Diesel Engine Driven Generator	11.57	21.2	0.024	0.66	0.66	1.55	--	--	9.3E-04	--
S45	Emergency Diesel Engine Driven Firewater Pump	2.57	2.97	4.9E-03	0.15	0.15	1.10	--	--	1.9E-04	--
Fuel Storage Tanks											
S46	330,000 Gallon Distillate Oil Storage Tank	--	--	--	--	--	0.038	--	--	--	--
S47	20,000 Gallon Diesel Fuel Storage Tank	--	--	--	--	--	4.0E-03	--	--	--	--
S48	2,000 Gallon Diesel Fuel Storage Tank	--	--	--	--	--	3.9E-04	--	--	--	--
S49	500 Gallon Diesel Fuel Storage Tank	--	--	--	--	--	1.9E-05	--	--	--	--
S50	500 Gallon Unleaded Gasoline Storage Tank	--	--	--	--	--	8.5E-03	--	--	--	--
Total Emissions		2,376	1,156	1,387	639	633	60.1	0.28	15.1	53.2	0.39

LONG TERM EMISSIONS SUMMARY

ID	Emission Unit(s)	CO tons/yr	NOx tons/yr	SO2 tons/yr	PM tons/yr	PM10 tons/yr	VOC tons/yr	Pb tons/yr	HF tons/yr	H2SO4 tons/yr	Hg tons/yr
Combustion Sources											
S01	Unit 1 PC Boiler	3,427	1,599	2,024	868	868	82.2	0.26	15.3	77.7	0.050
S02	Unit 2 PC Boiler	3,427	1,599	2,024	868	868	82.2	0.26	15.3	77.7	0.050
S03	Unit 3 PC Boiler	3,427	1,599	2,024	868	868	82.2	0.26	15.3	77.7	0.050
S04	Reserved										
S05	Auxiliary Boiler (Distillate Oil-Fired)	3.67	9.18	0.14	4.59	4.59	0.28	--	--	5.5E-03	--
Coal Handling Particulate Sources											
S06	Railcar Unloading Station	--	--	--	1.53	0.53	--	--	--	--	--
S07	Emergency Coal Pile	--	--	--	3.25	3.25	--	--	--	--	--
S08	Emergency Pile Reclaim	--	--	--	1.25	1.25	--	--	--	--	--
S09	Reserved										
S10	Stackout Transfer Point #2	--	--	--	2.83	0.99	--	--	--	--	--
S11	Active Pile #1	--	--	--	6.49	6.49	--	--	--	--	--
S12	Active Pile #2	--	--	--	6.49	6.49	--	--	--	--	--
S13	Active Pile Reclaim	--	--	--	2.49	2.49	--	--	--	--	--
S14	Reserved										
S15	Transfer Tower	--	--	--	2.49	2.49	--	--	--	--	--
S16	Reserved										
S17	Tripper Deck	--	--	--	12	12	--	--	--	--	--
S18	Inactive Pile	--	--	--	5.27	5.26	--	--	--	--	--
Ash Handling Particulate Sources											
S19	Reserved										
S20	Bottom Ash Transfer Point #1	--	--	--	0.014	5.1E-03	--	--	--	--	--
S21	Reserved										
S22	Bottom Ash Bunker	--	--	--	0.014	5.1E-03	--	--	--	--	--
S23	Bottom Ash Transfer Point #2	--	--	--	0.014	5.1E-03	--	--	--	--	--
S24	Reserved										
S25	Bottom Ash Transfer Point #3	--	--	--	0.014	5.1E-03	--	--	--	--	--
S26	Fly Ash Silos	--	--	--	5.23	5.23	--	--	--	--	--
S27	Fly Ash Mixing Station	--	--	--	2.49	2.49	--	--	--	--	--
S28	Fly Ash Transfer Point #1	--	--	--	0.071	0.025	--	--	--	--	--
S29	Reserved										
S30	Fly Ash Transfer Point #2	--	--	--	0.071	0.025	--	--	--	--	--
S31	Reserved										
S32	On-Site Disposal Facility	--	--	--	5.96	1.44	--	--	--	--	--
Carbon Handling Particulate Sources											
S33	Carbon Silo	--	--	--	2.62	2.62	--	--	--	--	--
Lime Handling Particulate Sources											
S34	Reserved										
S35	Lime Railcar Unloading Station	--	--	--	16	16	--	--	--	--	--
S36	Reserved										
S37	Lime Silo	--	--	--	5.23	5.23	--	--	--	--	--
Roadway Particulate Sources											
S38	Unpaved Roadway Travel	--	--	--	10	2.38	--	--	--	--	--
S39	Paved Roadway Travel	--	--	--	2.75	0.52	--	--	--	--	--
Emergency Diesel Engine Driven Engines											
S40-S43	Reserved										
S44	Emergency Diesel Engine Driven Generator	2.89	5.29	6.1E-03	0.165	0.165	0.39	--	--	2.3E-04	--
S45	Emergency Diesel Engine Driven Firewater Pump	0.19	0.22	3.7E-04	0.011	0.011	0.083	--	--	1.4E-05	--
Storage Tanks											
S46	330,000 Gallon Distillate Oil Storage Tank	--	--	--	--	--	0.063	--	--	--	--
S47	20,000 Gallon Diesel Fuel Storage Tank	--	--	--	--	--	5.1E-04	--	--	--	--
S48	2,000 Gallon Diesel Fuel Storage Tank	--	--	--	--	--	1.1E-03	--	--	--	--
S49	500 Gallon Diesel Fuel Storage Tank	--	--	--	--	--	1.9E-04	--	--	--	--
S50	500 Gallon Unleaded Gasoline Storage Tank	--	--	--	--	--	0.27	--	--	--	--
Total Emissions		10,287	4,812	6,071	2,704	2,687	248	0.79	46.0	233	0.15

I. PC BOILERS S01, S02, and S03

	S01, S02, and S03						
	Load Condition				Averaging Period		
	Min.	50%	75%	100%	3-hr	24-hr	Annual
Megawatts (Gross)	147	291	432	576	576	576	576
Megawatts (Net)	133	265	398	530	530	530	530
Heat Input (MMBtu/hr, HHV)	1,468	2,763	3,986	5,216	5,216	5,216	5,216
Coal HHV (Btu/lb)	8,200	8,200	8,200	8,200	8,200	8,200	8,200
Design Sulfur (%)	0.46%	0.46%	0.46%	0.46%	0.46%	0.46%	0.46%
Max Sulfur (%)	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%
Coal flow (lb/hr)	179,069	336,945	486,049	636,158	636,158	636,158	636,158
Coal Flow (tons/hr)	90	168	243	318	318	318	318
Stack Exit Temperature (deg F)	165	165	165	165	165	165	165
Stack Exit Flow (lb/hr)	1,757,432	3,209,524	4,348,988	5,692,172	5,692,172	5,692,172	5,692,172
Stack Exit Flow (acfm)	468,211	853,866	1,153,416	1,509,649	1,509,649	1,509,649	1,509,649
Stack Diameter (ft)	22.2	22.2	22.2	22.2	22.2	22.2	22.2
Stack Velocity (ft/sec)	20	37	50	65	65	65	65
CO							
lb/MMBtu	0.15	0.15	0.15	0.15	--	0.15	0.15
lb/hr	220.20	414.45	597.90	782.40	--	782.40	782.40
tpy	--	--	--	--	--	--	3,426.9
NOx							
lb/MMBtu before SCR	0.30	0.30	0.30	0.30	--	0.30	0.30
% Control	77%	77%	77%	77%	--	77%	77%
lb/MMBtu	0.07	0.07	0.07	0.07	--	0.07	0.07
lb/hr	102.76	193.41	279.02	365.12	--	365.12	365.12
tpy	--	--	--	--	--	--	1,599.2
SO2							
lb/MMBtu before scrubber *	1.61	1.61	1.61	1.61	--	1.61	1.61
% Control	94%	94%	94%	94%	--	94%	94%
lb/MMBtu after scrubber *	0.09	0.09	0.09	0.09	--	0.09	0.09
lb/hr after scrubber	130.0	245.0	353.0	462.0	--	462.0	462.0
tpy after scrubber	--	--	--	--	--	--	2,023.6
PM/PM10 - total, controlled							
lb/MMBtu	0.038	0.038	0.038	0.038	0.038	--	0.038
lb/hr	55.78	104.99	151.47	198.21	198.21	--	198.21
tpy	--	--	--	--	--	--	868.2
PM/PM10 - filterable, controlled							
lb/MMBtu	0.015	0.015	0.015	0.015	0.015	--	0.015
lb/hr	22.02	41.45	59.79	78.24	78.24	--	78.24
tpy	--	--	--	--	--	--	342.7
VOC							
lb/MMBtu	3.6E-03	3.6E-03	3.6E-03	3.6E-03	3.6E-03	--	3.6E-03
lb/hr	5.28	9.95	14.35	18.78	18.78	--	18.78
tpy	--	--	--	--	--	--	82.2
Lead							
ppm, uncontrolled	9.48	9.48	9.48	9.48	15	--	9.48
% Control	99%	99%	99%	99%	99%	--	99%
lb/MMBtu	1.2E-05	1.2E-05	1.2E-05	1.2E-05	1.8E-05	--	1.2E-05
lb/hr	0.017	0.032	0.046	0.060	0.092	--	0.060
tpy	--	--	--	--	--	--	0.264
Fluoride (as HF)							
ppm, uncontrolled	105	105	105	105	151	--	105
% Control	95%	95%	95%	95%	95%	--	95%
lb/MMBtu	6.7E-04	6.7E-04	6.7E-04	6.7E-04	9.7E-04	--	6.7E-04
lb/hr	0.98	1.85	2.67	3.50	5.04	--	3.50
tpy	--	--	--	--	--	--	15.32
H2SO4							
lb/MMBtu before scrubber	0.062	0.062	0.062	0.062	0.043	--	0.062
% Control	92%	92%	92%	92%	92%	--	92%
lb/MMBtu *	4.9E-03	3.4E-03	3.4E-03	3.4E-03	3.4E-03	--	3.4E-03
lb/hr	7.23	9.39	13.55	17.73	17.73	--	17.73
tpy	--	--	--	--	--	--	77.7
Hg							
lb/MW-hr	2.0E-05	2.0E-05	2.0E-05	2.0E-05	--	--	2.0E-05
lb/MMBtu	--	--	--	--	2.5E-05	--	--
lb/hr	0.003	0.006	0.009	0.012	0.130	--	0.012
tpy	--	--	--	--	--	--	0.050
NH3 Slip							
ppm	5	5	5	5	10	--	5
lb/hr	4.50	8.00	10.50	14.60	41.00	--	14.60
tpy	--	--	--	--	--	--	64.0
HCl							
ppm, uncontrolled	215	215	215	215	329	--	215
% Control	95%	95%	95%	95%	95%	--	95%
lb/MMBtu	1.3E-03	1.3E-03	1.3E-03	1.3E-03	2.1E-03	--	1.3E-03
lb/hr	1.979	3.724	5.373	7.031	10.759	--	7.031
tpy	--	--	--	--	--	--	30.8

* Values based on potential to emit versus design coal.

II. AUXILIARY BOILER

S04 Reserved

S05 Auxiliary Boiler

Heat Input (MMBtu/hr)	367
Fuel Heating Value (Btu/lb)	19,200
Fuel Density (lb/gal)	7.23
Fuel Flow (lb/hr)	19,115
Annual Operating Hours	500
Annual Fuel (gal)	1,321,894
Fuel Sulfur (ppm)	15

Stack Temperature (deg F)	670
Stack Height (ft)	225
Stack Diameter (ft)	7.24
Stack Flow (acfm)	146,800

CO	
lb/MMBtu	0.04
lb/hr	14.7
ton/year	3.67

NOx	
lb/MMBtu	0.1
lb/hr	36.7
ton/year	9.18

SO2	
lb/MMBtu	1.6E-03
lb/hr	0.57
ton/year	0.14

PM/PM10 - total	
lb/MMBtu	0.05
lb/hr	18.4
ton/year	4.59

PM/PM10 - filterable	
lb/MMBtu	0.01
lb/hr	3.67
ton/year	0.92

VOC	
lb/MMBtu	0.003
lb/hr	1.10
ton/year	0.28

H2SO4	
lb/MMBtu	6.0E-05
lb/hr	0.022
ton/year	5.5E-03

Notes: Emission rates are based on discussions with vendors.
SO2 emission rate based on fuel sulfur content.
H2SO4 emission rate based on fuel sulfur content and 2.5% oxidation rate.

III. COAL HANDLING PARTICULATE EMISSIONS

S06 Railcar Unloading Station

Railcars will be brought into a partially enclosed railcar unloading structure. The railcars will be connected with a rotary coupling so they can be tipped to dump the coal. The coal will be dumped into an underground hopper. From the underground hopper the coal will be transferred to a short conveyor and then transferred to stackout conveyor #1. A dust suppression spray will be used to control dust emissions from the railcar unloader. The sprayed water will also reduce emissions throughout the downstream conveying process. The hopper, short conveyor and two transfer points are located in an enclosed area under the Railcar Unloading Station.

Coal Throughput Design Data

Maximum coal transfer rate: 4,000 tons/hr
8,359,116 tons/yr Assumes full load operation for 8,760 hours per year

S06 Emissions from Railcar Unloading

The EPA AP-42, Section 13.2.4 drop point emission factor calculation is used to estimate continuous drop operation PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate while annual emissions are calculated based on the maximum expected throughput per year.

$$\text{Emission factor : } \left(\frac{\text{lb emissions}}{\text{ton coal}} \right) = k * 0.0032 * \frac{\left(\frac{U}{5} \right)^{1.3}}{\left(\frac{M}{2} \right)^{1.4}}$$

where:

k = particulate multiplier	=	1	for PM
k = particulate multiplier	=	0.35	for PM10
U = mean wind speed (mph)	=	9.8	average of 7 years of Ely SCRAM data
M = material moisture content in %	=	6.9	average moisture content of coal

PM Emission factor: 1.36E-03 lb/ton
PM10 Emission factor: 4.74E-04 lb/ton
Control efficiency: 87.5% for water sprays plus partial enclosure

PM = 0.68 lb/hr
PM = 0.71 tons/yr
PM10 = 0.24 lb/hr
PM10 = 0.25 tons/yr

S06 Emissions from hopper drop to short conveyor and from short conveyor drop to stackout conveyor #1

The EPA AP-42, Section 13.2.4 drop point emission factor calculation is used to estimate continuous drop operation PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate while annual emissions are calculated based on the maximum expected throughput per year. Two transfer points are calculated.

$$\text{Emission factor : } \left(\frac{\text{lb emissions}}{\text{ton coal}} \right) = k * 0.0032 * \frac{\left(\frac{U}{5} \right)^{1.3}}{\left(\frac{M}{2} \right)^{1.4}}$$

where:

k = particulate multiplier	=	1	for PM
k = particulate multiplier	=	0.35	for PM10
U = mean wind speed (mph)	=	1.3	conservative estimate for wind speed in enclosure
M = material moisture content (%)	=	6.9	average moisture content of coal

PM Emission factor: 9.81E-05 lb/ton
PM10 Emission factor: 3.43E-05 lb/ton

PM = 0.78 lb/hr includes two transfer points
PM = 0.82 tons/yr includes two transfer points
PM10 = 0.27 lb/hr includes two transfer points
PM10 = 0.29 tons/yr includes two transfer points

Combined Emissions at Railcar Unloading Station

PM = 1.46 lb/hr
PM = 1.53 tons/yr
PM10 = 0.51 lb/hr
PM10 = 0.53 tons/yr

S07 Emergency Coal Pile

The Emergency Coal Pile and reclaim will be in use during maintenance or repair of the Active Pile Reclaim. During those times, the Emergency Coal Pile will have an approximate exposed surface area of 0.70 acres assuming a cone shaped pile with an approximate base diameter of 173 feet and height of 65 feet. Fugitive dust emissions will be controlled by dust suppression water sprays.

Coal Pile Design Data

Area of coal pile: 0.70 acres

Emissions

Emissions are calculated using the EPA AP-42, Section 11.9.1 emission factor calculation for an active storage pile (wind erosion and maintenance bulldozing). PM and PM10 emissions are computed as TSP <= 30 um. Use of TSP <= 30 um is a conservative estimate for PM10.

$$\text{Emission factor : } \left(\frac{\text{lb}}{\text{acre} \cdot \text{hr}} \right) = 0.72u$$

where: u = average wind speed (mph) = 9.8 average of 7 years of Ely SCRAM data

Emission factor: 7.06 lb/acre-hr

Control efficiency: 85% for fogging water sprays

PM = 0.74 lb/hr

PM = 3.25 tons/yr

PM10 = 0.74 lb/hr

PM10 = 3.25 tons/yr

S08 Emergency Pile Reclaim

Coal will be transferred from the Emergency Coal Pile to the emergency conveyor via a drop operation under the Emergency Coal Pile. The emergency conveyor will transport the coal to the Transfer Tower. The drop onto the emergency conveyor will take place in an enclosed area under the Emergency Coal Pile. The Emergency Pile Reclaim will be enclosed and all emissions will exhaust through a fabric filter.

Filter Design Data

Stack Diameter 1.0 feet
Stack Flow 3,320 dscfm

Emissions from Emergency Coal Pile drop to emergency conveyor

The fabric filter will use bags with a maximum emission rate of 0.01 gr/dscf. The estimated stack flow rate and 0.01 gr/dscf emission rate are used to estimate PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate. Annual emissions are calculated based on 8,760 hours of operation per year at the maximum hourly design rate.

Emission factor : 0.01 grains/dscf

PM = 0.28 lb/hr

PM = 1.25 tons/yr

PM10 = 0.28 lb/hr

PM10 = 1.25 tons/yr

S09 Reserved

S10 Stackout Transfer Point #2 (stackout conveyor #2 to Active Pile #1 or #2)

From stackout conveyor #1, coal is transferred onto stackout conveyor #2 by drop operation in the Transfer Tower, mentioned below. Coal will be transferred from stackout conveyor #2 to Active Pile #1 or Active Pile #2 by drop operation at the Stackout Transfer Point #2 via stackout tube.

Coal Throughput Design Data

Maximum coal transfer rate: 4,000 tons/hr
 8,359,116 tons/yr Assumes full load operation for 8,760 hours per year

Emissions

The EPA AP-42, Section 13.2.4 drop point emission factor calculation is used to estimate continuous drop operation PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate while annual emissions are calculated based on the maximum expected throughput per year.

$$\text{Emission factor : } \left(\frac{\text{lb emissions}}{\text{ton coal}} \right) = k * 0.0032 * \frac{\left(\frac{U}{5} \right)^{1.3}}{\left(\frac{M}{2} \right)^{1.4}}$$

where: k = particulate multiplier = 1 for PM
 k = particulate multiplier = 0.35 for PM10
 U = mean wind speed (mph) = 9.8 average of 7 years of Ely SCRAM data
 M = material moisture content (%) = 6.9 average moisture content of coal

PM Emission factor: 1.36E-03 lb/ton
 PM10 Emission factor: 4.74E-04 lb/ton
 Control efficiency: 50% for telescopic chute

PM = 2.71 lb/hr
 PM = 2.83 tons/yr
 PM10 = 0.95 lb/hr
 PM10 = 0.99 tons/yr

S11 Active Pile #1

Active Pile #1 will have an approximate exposed surface area of 1.4 acres assuming a cone shaped pile with an approximate base diameter of 244 feet and height of 92 feet. Fugitive dust emissions will be controlled by dust suppression water sprays.

Coal Pile Design Data

Area of coal pile: 1.4 acres

Emissions

Emissions are calculated using the EPA AP-42, Section 11.9.1 emission factor calculation for an active storage pile (wind erosion and maintenance bulldozing). PM and PM10 emissions are computed as TSP <= 30 um. Use of TSP <= 30 um is a conservative estimate for PM10.

$$\text{Emission factor : } \left(\frac{\text{lb}}{\text{acre} \cdot \text{hr}} \right) = 0.72u$$

where: u = average wind speed (mph) = 9.8 average of 7 years of Ely SCRAM data

Emission factor: 7.06 lb/acre-hr
 Control efficiency: 85% for fogging water sprays

PM = 1.48 lb/hr
 PM = 6.49 tons/yr
 PM10 = 1.48 lb/hr
 PM10 = 6.49 tons/yr

S12 Active Pile #2

Active Pile #2 will have an approximate exposed surface area of 1.4 acres assuming a cone shaped pile with an approximate base diameter of 244 feet and height of 92 feet. Fugitive dust emissions will be controlled by dust suppression water sprays.

Coal Pile Design Data

Area of coal pile: 1.4 acres

Emissions

Emissions are calculated using the EPA AP-42, Section 11.9.1 emission factor calculation for an active storage pile (wind erosion and maintenance bulldozing). PM and PM10 emissions are computed as TSP <= 30 um. Use of TSP <= 30 um is a conservative estimate for PM10.

$$\text{Emission factor : } \left(\frac{\text{lb}}{\text{acre} \cdot \text{hr}} \right) = 0.72u$$

where: u = average wind speed (mph) = 9.8 average of 7 years of Ely SCRAM data

Emission factor: 7.06 lb/acre-hr
Control efficiency: 85% for fogging water sprays

PM = 1.48 lb/hr
PM = 6.49 tons/yr
PM10 = 1.48 lb/hr
PM10 = 6.49 tons/yr

S13 Active Pile Reclaim

Coal will be transferred from the Active Piles to the active pile conveyor via a drop operation under the Active Piles. From the active pile conveyor, the coal will be dropped onto reclaim conveyor #1. The drop onto the active pile conveyor and the drop onto reclaim conveyor #1 will take place in an enclosed area under the Active Piles. The Active Pile Reclaim will be enclosed and all emissions will exhaust through a fabric filter.

Filter Design Data

Stack Diameter 1.5 feet
Stack Flow 6,640 dscfm

Emissions from Active Piles drop to active pile conveyor and active pile conveyor to reclaim conveyor #1

The fabric filter will use bags with a maximum emission rate of 0.01 gr/dscf. The estimated stack flow rate and 0.01 gr/dscf emission rate are used to estimate PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate. Annual emissions are calculated based on 8,760 hours of operation per year at the maximum hourly design rate.

Emission factor : 0.01 grains/dscf

PM = 0.57 lb/hr
PM = 2.49 tons/yr
PM10 = 0.57 lb/hr
PM10 = 2.49 tons/yr

S14 Reserved

S15 Transfer Tower

The Transfer Tower will receive coal from stackout conveyor #1 (from Railcar Unloading), reclaim conveyor #1 (from Active Piles), and emergency conveyor (from Emergency Coal Pile) for transfer onto stackout conveyor #2 (for transfer to the Active Piles) and reclaim conveyor #2 (for transfer to the boilers). The Transfer Tower may also contain a crusher for crushing any large pieces of coal. The Transfer Tower will be enclosed and all emissions will exhaust through a fabric filter.

Filter Design Data

Stack Diameter 1.5 feet
Stack Flow 6,640 dscfm

Emissions from Transfers and Crusher

The fabric filter will use bags with a maximum emission rate of 0.01 gr/dscf. The estimated stack flow rate and 0.01 gr/dscf emission rate are used to estimate PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate. Annual emissions are calculated based on 8,760 hours of operation per year at the maximum hourly design rate.

Emission factor : 0.01 grains/dscf

PM = 0.57 lb/hr
PM = 2.49 tons/yr
PM10 = 0.57 lb/hr
PM10 = 2.49 tons/yr

S16 Reserved

S17 Tripper Deck

The tripper deck conveyor will receive coal from reclaim conveyor #2 and transport it to the storage silos. The tripper deck conveyor, silos and two transfer points will be enclosed and the enclosure will exhaust through a fabric filter.

Filter Design Data

Stack Diameter 3.0 feet
Stack Flow 33,200 dscfm

Emissions from reclaim conveyor #2 drop to tripper deck conveyor and tripper deck conveyor drop to silos

The fabric filter will use bags with a maximum emission rate of 0.01 gr/dscf. The estimated stack flow rate and 0.01 gr/dscf emission rate are used to estimate PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate. Annual emissions are calculated based on 8,760 hours of operation per year at the maximum hourly design rate.

Emission factor : 0.01 grains/acf

PM = 2.85 lb/hr
PM = 12 tons/yr
PM10 = 2.85 lb/hr
PM10 = 12 tons/yr

S18 Inactive Pile

The Inactive Pile will be approximately rectangular in shape. The approximate dimensions of the pile will be 2,080 feet by 1,035 feet at the base with a height of 5 feet and a side slope of 2:1. To account for potential weekly disturbances, approximately 3.3% of the pile surface area is assumed to be affected by pile maintenance and is calculated as an active stockpile. The remaining 96.7%, the Inactive Portion, is assumed to be affected by wind erosion and is calculated as industrial wind erosion. Fugitive dust emissions will be controlled by dust suppression spray water plus surface crusting agents as necessary.

Emissions from Inactive Portion

Emissions are calculated using the EPA AP-42, Section 13.2.5 emission factor calculation for industrial wind erosion. PM emissions are assumed to be equal to PM30 emissions. Emissions from the pile are conservatively modeled using the fastest mile of wind recorded in the five years of Columbus meteorology data used for PSD modeling.

Emission factor : $k \sum_{i=1}^N P_i$ where $P_i = 58 (u^* - u^* t)^2 + 25 (u^* - u^* t)$ for $u^* > u^* t$
and $P_i = 0$ for $u^* \leq u^* t$

where k = Particle size multiplier = 1.0 PM
 k = Particle size multiplier = 0.5 PM10
 P_i = Erosion Potential Function (g/m2)
 u^* = Equivalent friction velocity = 0.1 u_{s+}
 u_{s+} = Surface wind speed distribution = $u_s / u_r \times u_{10+}$
 u_s / u_r = Ratio of surface wind speed to approach wind speed
 u_{10+} = Fastest mile of ref. anemometer (m/s) = 14.4 Fastest mile windspeed in 7 years of Ely SCRAM data
 $u^* t$ = Threshold friction velocity (m/s) = 1.12 Uncrusted Coal Pile From AP-42 Table 13.2.5-2

Based on the shape and the orientation to the prevailing wind direction guidance given in AP-42 Section 13.2.5, the inactive coal pile can be subdivided into three u_s / u_r ratio subareas. These three subareas are used to calculate the equivalent friction velocity (u^*).

	Subarea #1	Subarea #2	Subarea #3
Surface Area, ft ²	66,501	2,165,887	33,250
Subarea u_s / u_r	0.2	0.6	0.9
Subarea u_{s+}	2.88	8.63	13
Subarea u^*	0.29	0.86	1.30
Subarea $u^* t$	1.12	1.12	1.12
Is $u^* < u^* t$?	Yes	Yes	No
Subarea P_i	0	0	6.16

PM Emission factor (g/m2/yr): 6.16
PM Emission factor (lb/ft2/hr): 1.44E-07
PM10 Emission factor (g/m2/yr): 3.08
PM10 Emission factor (lb/ft2/hr): 7.21E-08

PM = 4.8E-03 lb/hr
PM = 0.021 tons/yr
PM10 = 2.4E-03 lb/hr
PM10 = 0.010 tons/yr

Active Portion Pile Design Data

Surface area: 1.7 acres

Emissions from Active Portion

Emissions are calculated using the EPA AP-42, Section 11.9.1 emission factor calculation for an active storage pile (wind erosion and maintenance bulldozing). PM and PM10 emissions are computed as TSP <= 30 um. Use of TSP <= 30 um is a conservative estimate for PM10.

Emission factor :
$$\left(\frac{\text{lb}}{\text{acre} \cdot \text{hr}} \right) = 0.72u$$

where: u = average wind speed (mph) = 9.8 average of 7 years of Ely SCRAM data

Emission factor: 7.06 lb/acre-hr

Control efficiency = 90% for water sprays and chemical suppressant

PM = 1.20 lb/hr
PM = 5.25 tons/yr
PM10 = 1.20 lb/hr
PM10 = 5.25 tons/yr

Combined Emissions at Inactive Pile

PM = 1.20 lb/hr
PM = 5.27 tons/yr
PM10 = 1.20 lb/hr
PM10 = 5.26 tons/yr

IV. ASH MANAGEMENT PARTICULATE SOURCES

Wastes produced by the boiler, scrubber, and fabric filter are grouped into two types, bottom ash and fly ash.

BOTTOM ASH

The term "bottom ash" is used to refer collectively to the boiler bottom ash and pyrite rejects. This waste stream is modeled as a separate waste stream for disposal in the On-Site Disposal Facility.

S19 Reserved

S20 Bottom Ash Transfer Point #1

Bottom ash from the boiler is collected by a submerged chain conveyor and dropped onto the bottom ash conveyor at Bottom Ash Transfer Point #1. The Facility may have a grinder for reducing the size of any large pieces of bottom ash, which will be placed between the submerged-chain conveyor and the bottom ash conveyor. A building will enclose the optional grinder and associated transfer points. Since AP-42 Section 11.24 lists emissions from wet grinding as negligible, the grinding operation and enclosed transfer points are not calculated. Instead, emissions are conservatively calculated for the single exposed Bottom Ash Transfer Point #1. The bottom ash will have a high surface moisture content thereby reducing emissions.

Bottom Ash Throughput Design Data

Maximum bottom ash transfer rate: 40 tons/hr
 94,610 tons/yr

Assumes full load operation for 8,760 hours per year

Emissions

The EPA AP-42, Section 13.2.4 drop point emission factor calculation is used to estimate continuous drop operation PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate while annual emissions are calculated based on the maximum expected throughput per year.

$$\text{Emission factor : } \left(\frac{\text{lb emissions}}{\text{ton ash}} \right) = k * 0.0032 * \frac{\left(\frac{U}{5} \right)^{1.3}}{\left(\frac{M}{2} \right)^{1.4}}$$

where:	k = particulate multiplier	=	1	for PM
	k = particulate multiplier	=	0.35	for PM10
	U = mean wind speed (mph)	=	9.8	average of 7 years of Ely SCRAM data
	M = material moisture content (%)	=	20	average moisture content of bottom ash

PM Emission factor: 3.06E-04 lb/ton
PM10 Emission factor: 1.07E-04 lb/ton

PM = 0.012 lb/hr
PM = 0.014 tons/yr
PM10 = 4.3E-03 lb/hr
PM10 = 5.1E-03 tons/yr

S21 Reserved

S22 Bottom Ash Bunker

Bottom ash is dropped from the bottom ash conveyor into the Bottom Ash Bunker. The Bottom Ash Bunker will be partially enclosed. The bottom ash will have a high surface moisture content thereby reducing emissions.

Bottom Ash Throughput Design Data

Maximum bottom ash transfer rate: 40 tons/hr
94,610 tons/yr Assumes full load operation for 8,760 hours per year

Emissions

The EPA AP-42, Section 13.2.4 drop point emission factor calculation is used to estimate continuous drop operation PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate while annual emissions are calculated based on the maximum expected throughput per year.

Emission factor :

$$\left(\frac{\text{lb emissions}}{\text{ton ash}} \right) = k * 0.0032 * \frac{\left(\frac{U}{5} \right)^{1.3}}{\left(\frac{M}{2} \right)^{1.4}}$$

where:

k = particulate multiplier	=	1	for PM
k = particulate multiplier	=	0.35	for PM10
U = mean wind speed (mph)	=	9.8	
M = material moisture content (%)	=	20	average moisture content of bottom ash

PM Emission factor: 3.06E-04 lb/ton

PM10 Emission factor: 1.07E-04 lb/ton

PM = 0.012 lb/hr
PM = 0.014 tons/yr
PM10 = 4.3E-03 lb/hr
PM10 = 5.1E-03 tons/yr

S23 Bottom Ash Transfer Point #2

The bottom ash will be loaded from the Bottom Ash Bunker into trucks for transport to the On-Site Disposal Facility. The bottom ash will have a high surface moisture content thereby reducing emissions.

Bottom Ash Throughput Design Data

Maximum bottom ash transfer rate: 150 tons/hr
94,610 tons/yr Assumes full load operation for 8,760 hours per year

Emissions

The EPA AP-42, Section 13.2.4 drop point emission factor calculation is used to estimate continuous drop operation PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate while annual emissions are calculated based on the maximum expected throughput per year.

Emission factor :

$$\left(\frac{\text{lb emissions}}{\text{ton ash}} \right) = k * 0.0032 * \frac{\left(\frac{U}{5} \right)^{1.3}}{\left(\frac{M}{2} \right)^{1.4}}$$

where:

k = particulate multiplier	=	1	for PM
k = particulate multiplier	=	0.35	for PM10
U = mean wind speed (mph)	=	9.8	average of 7 years of Ely SCRAM data
M = material moisture content (%)	=	20	average moisture content of bottom ash

PM Emission factor: 3.06E-04 lb/ton

PM10 Emission factor: 1.07E-04 lb/ton

PM = 0.046 lb/hr
PM = 0.014 tons/yr
PM10 = 0.016 lb/hr
PM10 = 5.1E-03 tons/yr

S24 Reserved

S25 Bottom Ash Transfer Point #3

The bottom ash will be dropped from the bottom ash trucks onto the Working Face of the On-Site Disposal Facility. The bottom ash will have a high surface moisture content thereby reducing fugitive emissions.

Bottom Ash Throughput Design Data

Maximum bottom ash transfer rate: 150 tons/hr
94,610 tons/yr Assumes full load operation for 8,760 hours per year

Emissions

The EPA AP-42, Section 13.2.4 drop point emission factor calculation is used to estimate continuous drop operation PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate while annual emissions are calculated based on the maximum expected throughput per year.

$$\text{Emission factor: } \left(\frac{\text{lb emissions}}{\text{ton ash}} \right) = k * 0.0032 * \frac{\left(\frac{U}{5} \right)^{1.3}}{\left(\frac{M}{2} \right)^{1.4}}$$

where:

k = particulate multiplier	=	1	for PM
k = particulate multiplier	=	0.35	for PM10
U = mean wind speed (mph)	=	9.8	average of 7 years of Ely SCRAM data
M = material moisture content (%)	=	20	average moisture content of bottom ash

PM Emission factor: 3.06E-04 lb/ton

PM10 Emission factor: 1.07E-04 lb/ton

PM = 0.046 lb/hr
PM = 0.014 tons/yr
PM10 = 0.016 lb/hr
PM10 = 5.1E-03 tons/yr

FLY ASH MANAGEMENT PARTICULATE SOURCES

The term "fly ash" is used to refer collectively to the ash removed from the economizer and air heater and the fly ash and scrubber waste from the fabric filter. The fly ash may be transported off-site via rail and/or truck or may be disposed of on-site. If disposed of on-site, there will be more transfer points and more possibility of particulate matter emissions. To be conservative, emissions related to on-site disposal are calculated. For on-site disposal, the fly ash will be mixed with water prior to disposal. The mixing station may be located near the power island, or next to the on-site disposal facility. Location next to the power island will have higher emissions so for design purposes, it is located next to the power island.

S26 Fly Ash Silos

The fly ash will first be transported through pipes by pneumatic means from the boiler economizer and air heater hoppers and from the boiler fabric filter to one or more Fly Ash Silos. The transfer of portions of the fly ash to multiple silos are modeled as one transfer of all fly ash to one silo. From the Fly Ash Silo(s), the fly ash will be pneumatically transferred to either the loading facility or a mixing chamber. Each silo vent will exhaust through a vent filter.

Filter Design Data

Stack Diameter 1.5 feet
Stack Flow 6,972 dscfm

Emissions

The vent filter will use bags with a maximum emission rate of 0.02 gr/dscf. The estimated stack flow rate and 0.02 gr/dscf emission rate are used to estimate PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate. Annual emissions are calculated based on 8,760 hours of operation per year at the maximum hourly design rate.

Emission factor: 0.02 gr/dscf

PM = 1.20 lb/hr
PM = 5.23 tons/yr
PM10 = 1.20 lb/hr
PM10 = 5.23 tons/yr

S27 Fly Ash Mixing Station

A pneumatic conveyor will transport the fly ash from the Fly Ash Silo(s) into a mixing station next to the boiler fabric filter. In the mixing station, the fly ash will be mixed with approximately 30% water to create a wet dough-like product. The mixing station will exhaust through a fabric filter.

Filter Design Data

Stack Diameter	1.5	feet
Stack Flow	6,640	dscfm

Emissions

The fabric filter will use bags with a maximum emission rate of 0.01 gr/dscf. The estimated stack flow rate and 0.01 gr/dscf emission rate are used to estimate PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate. Annual emissions are calculated based on 8,760 hours of operation per year at the maximum hourly design rate.

PM Emission factor:	0.01	gr/dscf
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PM =	0.57	lb/hr
PM =	2.49	tons/yr
PM10 =	0.57	lb/hr
PM10 =	2.49	tons/yr

S28 Fly Ash Transfer Point #1 (Fly Ash Mixing Station to fly ash truck)

Fly ash will be dropped from the Fly Ash Mixing Station into fly ash trucks for transport to the On-Site Disposal Facility. The fly ash will be in a wet, dough-like form thereby minimizing fugitive emissions.

Fly Ash Throughput Design Data

Maximum hourly dry fly ash transfer rate:	200	tons/hr
Water added to fly ash:	30	% of wet mixture weight
Maximum hourly wet fly ash transfer rate:	286	tons/hr

Maximum annual dry fly ash transfer rate:	576,951	tons/yr	Assumes full load operation for 8,760 hours per year
Water added to fly ash:	30	% of wet mixture weight	
Maximum annual wet fly ash transfer rate:	824,216	tons/yr	

Emissions

The EPA AP-42, Section 13.2.4 drop point emission factor calculation is used to estimate continuous drop operation PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate while annual emissions are calculated based on the maximum throughput per year.

$$\text{Emission factor : } \left(\frac{\text{lb emissions}}{\text{ton ash}} \right) = k * 0.0032 * \frac{\left(\frac{U}{5} \right)^{1.3}}{\left(\frac{M}{2} \right)^{1.4}}$$

where:	k = particulate multiplier	=	1	for PM
	k = particulate multiplier	=	0.35	for PM10
	U = mean wind speed (mph)	=	9.8	average of 7 years of Ely SCRAM data
	M = material moisture content (%)	=	30	average moisture content of wet fly ash mixture

PM Emission factor:	1.73E-04	lb/ton
PM10 Emission factor:	6.06E-05	lb/ton

PM =	0.049	lb/hr
PM =	0.071	tons/yr
PM10 =	0.017	lb/hr
PM10 =	0.025	tons/yr

S29 Reserved

S30 Fly Ash Transfer Point #2 (fly ash truck to On-Site Disposal Facility)

Fly ash will be transferred from the fly ash trucks to the On-Site Disposal Facility by drop operation. The fly ash will be in a wet, dough-like form thereby minimizing fugitive emissions.

Fly Ash Throughput Design Data

Maximum wet fly ash transfer rate:	286	tons/hr	
	824,216	tons/yr	Assumes full load operation for 8,760 hours per year

Emissions

The EPA AP-42, Section 13.2.4 drop point emission factor calculation is used to estimate continuous drop operation PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate while annual emissions are calculated based on the maximum throughput per year.

$$\text{Emission factor : } \left(\frac{\text{lb emissions}}{\text{ton ash}} \right) = k * 0.0032 * \frac{\left(\frac{U}{5} \right)^{1.3}}{\left(\frac{M}{2} \right)^{1.4}}$$

where:	k = particulate multiplier	=	1	for PM
	k = particulate multiplier	=	0.35	for PM10
	U = mean wind speed (mph)	=	9.8	average of 7 years of Ely SCRAM data
	M = material moisture content (%)	=	30	average moisture content of wet fly ash mixture

PM Emission factor: 1.73E-04 lb/ton

PM10 Emission factor: 6.06E-05 lb/ton

PM =	0.049	lb/hr
PM =	0.071	tons/yr
PM10 =	0.017	lb/hr
PM10 =	0.025	tons/yr

S31 Reserved**S32 On-Site Disposal Facility**

The wet, dough-like fly ash mixture and bottom ash will be deposited into the On-Site Disposal Facility for permanent disposal. The fly ash mixture will solidify to a concrete-like substance within several hours thereby greatly reducing the potential for fugitive emissions. The On-Site Disposal Facility will consist of Earth Moving activities and Wind Erosion. Wind erosion will occur on the piles of cover material, top soil and the working cell of the disposal facility and is estimated at 10 acres. Once disposal in a cell has been completed, the area will be reclaimed to natural vegetation. Wet material, water sprays and surface crusting agents will be used to control fugitive emissions.

Emissions from Earth Moving

Emissions from earth moving are calculated using the EPA AP-42 Section 11.9 emission rate calculation for overburden bulldozing. PM emissions are assumed to be equal to TSP <= 30 emissions.

$$\text{Emission factor : } (\text{lb / hr}) = k * \frac{1 * s^{1.5}}{M^{1.4}}$$

where:	k = particulate multiplier	=	5.7	for PM
	k = particulate multiplier	=	1	for PM15
	s = material silt content (%)	=	9.0	AP-42 Table 13.2.4-1
	M = material moisture content (%)	=	12.0	AP-42 Table 13.2.4-1
	PM10 scaling factor from PM15	=	0.75	AP-42 Table 11.9

PM Emission factor: 4.75 lb/hr

PM10 Emission factor: 0.62 lb/hr

Control efficiency: 75% for water sprays

PM =	1.19	lb/hr
PM =	5.20	tons/yr
PM10 =	0.16	lb/hr
PM10 =	0.68	tons/yr

Emission from Wind Erosion

Emissions from wind erosion are calculated using the EPA AP-42 Section 11.9 emission factor for wind erosion of exposed areas. PM and PM10 emissions are computed as TSP <= 30 um. Use of TSP <= 30 um is a conservative estimate for PM10.

Area Design Data

Exposed Area: 10 acres

Emission factor : 0.38 ton / acre - yr

Control efficiency: 80.0% for water sprays and/or surface crusting agents

PM = 0.17 lb/hr

PM = 0.76 tons/yr

PM10 = 0.17 lb/hr

PM10 = 0.76 tons/yr

Combined Emissions from On-Site Disposal Facility

PM = 1.36 lb/hr

PM = 5.96 tons/yr

PM10 = 0.33 lb/hr

PM10 = 1.44 tons/yr

VI. CARBON HANDLING PARTICULATE SOURCES

S33 Carbon Silo

Halogenated Activated Carbon will be delivered to the Facility in pneumatic trucks. Trucks will blow the carbon into the Carbon Silo. From the Carbon Silo, the carbon will be pumped to the injection grid in the flue gas stream. The Carbon Silo will exhaust through a vent filter.

Filter Design Data

Stack Diameter	1.0	feet
Stack Flow	3,486	dscfm

Emissions

The vent filter will use bags with a maximum emission rate of 0.02 gr/dscf. The estimated stack flow rate and 0.02 gr/dscf emission rate are used to estimate PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate. Annual emissions are calculated based on 8,760 hours of operation per year at the maximum hourly design rate.

Emission factor : 0.02 gr/dscf

PM =	0.60	lb/hr
PM =	2.62	tons/yr
PM10 =	0.60	lb/hr
PM10 =	2.62	tons/yr

VI. LIME HANDLING PARTICULATE SOURCES

S34 **Reserved**

S35 **Lime Railcar Unloading Station**

Lime will be delivered to the Facility in pneumatic trucks or railcars. If delivered by railcar, there will be more transfer points and more possibility of particulate matter emissions. To be conservative, railcar delivery is modeled. Railcars will be brought into a partially enclosed railcar unloading structure. The railcars will have doors on the bottom which will open to dump the lime, or the cars will be connected with a rotary coupling so they can be tipped to dump the lime. The lime will be dumped into an underground hopper. From the underground hopper the lime will be transferred to a short conveyor and then to the lime conveyor. The hopper, the short conveyor and two transfer points will all occur in an enclosed area under the Lime Railcar Unloading Station. Emissions from the enclosed area will vent through a fabric filter.

Filter Design Data

Stack Diameter	4.0	feet
Stack Flow	42,200	dscfm

Emissions from Railcar Unloading

The fabric filter will use bags with a maximum emission rate of 0.01 gr/dscf. The estimated stack flow rate and 0.01 gr/dscf emission rate are used to estimate PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate. Annual emissions are calculated based on 8,760 hours of operation per year at the maximum hourly design rate.

Emission factor : 0.01 gr/dscf

PM =	3.62	lb/hr
PM =	16	tons/yr
PM10 =	3.62	lb/hr
PM10 =	16	tons/yr

S36 **Reserved**

S37 **Lime Silo**

Lime will be transferred from the lime conveyor to the Lime Silo by drop operation. From the Lime Silo, the lime will be gravity fed to a mixing station. At the enclosed mixing station a slurry will be created. The Lime Silo will exhaust through a vent filter.

Filter Design Data

Stack Diameter	1.5	feet
Stack Flow	6,972	dscfm

Emissions

The vent filter will use bags with a maximum emission rate of 0.02 gr/dscf. The estimated stack flow rate and 0.02 gr/dscf emission rate are used to estimate PM and PM10 emission rates. Hourly emissions are calculated based on the maximum hourly design rate. Annual emissions are calculated based on 8,760 hours of operation per year at the maximum hourly design rate.

Emission factor : 0.02 gr/dscf

PM =	1.20	lb/hr
PM =	5.23	tons/yr
PM10 =	1.20	lb/hr
PM10 =	5.23	tons/yr

VII. ROADWAY PARTICULATE SOURCES

S38 Unpaved Roadway Travel

The Facility will have unpaved roads within the On-Site Disposal Facility. Ash transfer trucks will travel inside the On-Site Disposal Facility each day. One maintenance truck will travel the route approximately three times per day. Daily road travel is estimated according to the maximum expected trips per day. The unpaved roads will be covered with gravel and/or chemical suppressant. Speed will be controlled to minimize fugitive emissions.

Emissions

Emissions are calculated using the EPA AP-42, Section 13.2.2 emission factor calculation for unpaved roads. PM emissions are assumed to be equal to PM30 emissions. Emissions are conservatively estimated using maximum expected number of vehicle trips per day, 365 days per year.

Emission factor :

$$lb/VMT = k * (s/12)^a (W/3)^b ((365 - P)/365)$$

where:	k = particle size multiplier	=	4.9	per AP-42 Table 13.2.2-2 for PM30
	k = particle size multiplier	=	1.5	per AP-42 Table 13.2.2-2 for PM10
	s = surface silt content (%)	=	4.2	AP-42 Section 13.2.2 - Unpaved Roads Related Info
	W = mean vehicle weight (tons)	=	57.6	calculated below
	a = empirical constant	=	0.7	per AP-42 Table 13.2.2-2 for PM30
	a = empirical constant	=	0.9	per AP-42 Table 13.2.2-2 for PM10
	b = empirical constant	=	0.45	per AP-42 Table 13.2.2-2 for PM30
	b = empirical constant	=	0.45	per AP-42 Table 13.2.2-2 for PM10
	P = # of days with 0.01" precipitation	=	60	per AP-42 Figure 13.2.2-1
	VMT = vehicle miles traveled			

Summary of daily vehicle travel on unpaved roads:

vehicle type	VMT	per trip	weight (tons)	trips per day	total VMT daily	weight x daily VMT
bottom ash trucks	1.5		57	85	127.5	7,268
fly ash trucks	1.5		59	148	222	13,098
maintenance vehicles	1.5		3	3	4.5	13.5
Totals					354	20,379
			mean vehicle weight (tons) =			57.6

PM Emission factor:	7.42	lb/VMT
PM10 Emission factor:	1.84	lb/VMT
Control efficiency:	98%	for gravel/chemical suppressant and speed reduction (Malcolm Pirnie Air Currents May 2000)

PM =	2.19	lb/hr
PM =	10	tons/yr
PM10 =	0.54	lb/hr
PM10 =	2.38	tons/yr

S39 Paved Roadway Travel

All roads at the Facility other than on the interior of the On-Site Disposal Area will be paved. Daily road travel is estimated according to the maximum expected trips per day. Fugitive emissions will be controlled by water sprays and/or sweeping.

Emissions

Emissions are calculated using the EPA AP-42, Section 13.2.1 emission factor calculation for paved roads. PM emissions are assumed to be equal to PM30 emissions. Emissions are conservatively estimated using maximum expected number of vehicle trips per day, 365 days per

$$\text{Emission factor : } \left(\frac{\text{lb}}{\text{VMT}} \right) = \left(k \left(\frac{\text{sL}}{2} \right)^{6.5} \left(\frac{\text{W}}{3} \right)^{1.5} - C \right) \left(1 - \frac{1.2P}{N} \right)$$

where:	k = particle size multiplier	=	0.082	per AP-42 Table 13.2-1.1 for PM30
	k = particle size multiplier	=	0.016	per AP-42 Table 13.2-1.1 for PM10
	sL = road surface silt loading (g/m ²)	=	0.015	AP-42 Page 13.2.1-10 for annual avg conditions
	W = avg vehicle weight (tons)	=	23.9	calculated below
	C = emission factor for 1980's data	=	0.00047	per AP-42 Table 13.2.1-2 for PM30
	C = emission factor for 1980's data	=	0.00047	per AP-42 Table 13.2.1-2 for PM10
	P = # of days with 0.01" precipitation	=	60	per AP-42 Figure 13.2.1-2
	N = # of days in calculation period	=	365	
	VMT = vehicle miles traveled			

Summary of daily vehicle travel on paved roads:

vehicle type	VMT	per trip	weight (tons)	trips per day	total VMT daily	weight x daily VMT
lime trucks	1.2		30	16	19	576
bottom ash trucks	0.6		57	85	52	2,938
fly ash trucks	0.4		59	148	59	3,493
carbon trucks	1.2		15	2	2	36
ammonia trucks	1.3		19	15	20	371
employee/visitor cars	1.0		2	130	131	262
maintenance vehicles	4.0		3	10	40	120
miscellaneous delivery trucks	1.0		5	4	4	20
Totals					327	7,816

avg vehicle weight (tons) = 23.9

PM Emission factor: 0.046 lb/VMT
PM10 Emission factor: 8.8E-03 lb/VMT

PM = 0.63 lb/hr
PM = 2.75 tons/yr
PM10 = 0.12 lb/hr
PM10 = 0.52 tons/yr

VIII. EMERGENCY DIESEL ENGINES

S40 through S43 Reserved

S44 Emergency Diesel Engine Driven Generator

An Emergency Diesel Engine Driven Generator will be installed at the Facility to provide electric power for safe plant shutdown and critical load operation in the event of loss of the electrical grid. Operation of the generator will be limited to weekly testing and emergency use.

Design Data

Generator size	1,500 KW
Heat Rate	15.5 MMBtu/Hr
Annual Hours of Operation	500 hr/yr
Fuel Flow:	112 gal/hr
Annual Fuel:	56,000 gal

Emissions

CO, NOx, PM, and PM10 emissions are based on the applicable NSPS Subpart IIII limits. VOC emissions are based on a vendor cut-sheet for a Tier I compliant non-road diesel engine rated more than 560 kW. SO2 emissions are calculated assuming a fuel sulfur content of 15 ppm. H2SO4 emissions are calculated based on SO2 emissions and an assumed oxidation rate of 2.5%.

CO

g/kwh	3.5
lb/hr	11.6
ton/year	2.89

NOx

g/kwh	6.4
lb/hr	21
ton/year	5.29

SO2

lb/MMBtu	1.6E-03
lb/hr	0.024
ton/year	6.1E-03

PM

g/kwh	0.20
lb/hr	0.66
ton/year	0.17

PM10

g/kwh	0.20
lb/hr	0.66
ton/year	0.17

VOC

lb/MMBtu	0.10
lb/hr	1.55
ton/year	0.39

H2SO4

lb/MMBtu	6.0E-05
lb/hr	9.3E-04
ton/year	2.3E-04

S45 Emergency Diesel Engine Driven Firewater Pump

The Facility will have a Diesel Engine Driven Firewater Pump for emergency situations. Operation of the firewater pump will be limited to weekly testing and emergency use.

Design Data

Firewater pump size:	450 hp
Heat Rate:	3.15 MMBtu/hr
Annual Hours of Operation:	150 hours
Fuel Flow:	23 gal/hr
Annual Fuel:	3,404 gal

Emissions

The EPA AP-42, Table 3.3-1 emission factors are used to estimate VOC emissions. NSPS Subpart IIII limits are used to estimate CO, NOx, PM, and PM10 emissions. SO2 emissions are calculated assuming a fuel sulfur content of 15 ppm. H2SO4 emissions are calculated based on SO2 emissions and an assumed oxidation rate of 2.5%.

CO

g/HP-hr	2.6
lb/MMBtu	0.82
lb/hr	2.57
ton/year	0.19

NOx

g/HP-hr	3.0
lb/MMBtu	0.94
lb/hr	2.97
ton/year	0.22

SO2

lb/MMBtu	1.6E-03
lb/hr	4.9E-03
ton/year	3.7E-04

PM

g/HP-hr	0.15
lb/MMBtu	0.05
lb/hr	0.15
ton/year	0.011

PM10

g/HP-hr	0.15
lb/MMBtu	0.05
lb/hr	0.15
ton/year	0.011

VOC

lb/MMBtu	0.35
lb/hr	1.10
ton/year	0.083

H2SO4

lb/MMBtu	6.0E-05
lb/hr	1.9E-04
ton/year	1.4E-05

IX. STORAGE TANKS

Emissions from the storage tanks have been calculated in two ways, per EPA TANKS 4.09 for average conditions and with AP-42 for maximum hourly conditions.

ANNUAL EMISSION

Annual emissions are calculated using the EPA TANKS program version 4.09. Printouts of the results for each of the tanks follow these emissions calculations.

MAXIMUM HOURLY EMISSIONS

The Maximum Hourly Emissions are calculated using the EPA AP-42, Section 7.1 emission factor calculation for annual working losses.

Emission factor (Annual basis):
$$L_W = 0.0010 M_V P_{VA} Q K_N K_P$$

where:

Lw= working loss, lb/yr
Mv= vapor molecular weight, lb/lb-mole
Pva= vapor pressure at daily average liquid surface temperature, psia
Q= annual net throughput, bbl year
Kn= turnover factor = 1 for turnovers less than or equal to 36
Kp= working loss product factor = 1 for gasoline and diesel fuel

Revised to estimate hourly emissions:

Emission factor (Hourly basis):
$$L_W = 0.0010 M_V P_{VA} Q$$

where:

Lw= working loss, lb/hr
Mv= vapor molecular weight, lb/lb-mole
Pva= vapor pressure at time of tank filling, psia
Q= hourly throughput, bbl

S46 330,000 Gallon Distillate Oil Storage Tank

The Facility will have a 330,000 gallon vertical fixed roof storage tank for low sulfur distillate fuel oil for use in the auxiliary boiler and the PC boilers during startup. The tank will be equipped with conservation vent valves. The fuel oil storage tank will be bermed to contain approximately 125% of the contents of the tank. The berm will be impervious to water and oil.

Tank System Design Data

Tank Shell Height = 40 ft
Tank Diameter = 39 ft

Emissions

Annual breathing and working emissions for the tank were calculated per EPA TANKS 4.09 (see attached). The maximum hourly VOC emissions from the tank are calculated using AP-42 described above.

EPA Tanks Summary:

Annual VOC Emissions: 127 lb/yr

Tank Maximum Hourly Emissions:

Emission factor:
$$L_W = 0.0010 M_V P_{VA} Q$$

where:

Lw=	working loss, lb/hr		
Mv=	vapor molecular weight, lb/lb-mole	=	130 lb/lb-mole
Pva=	vapor pressure at time of tank filling, psia	=	0.022 psia
Q=	hourly throughput, bbl	=	13 bbl

Emission factor: 0.038 lb/hr

VOC = 0.038 lb/hr

VOC = 0.063 tons/yr

S47 20,000 Gallon Diesel Fuel Storage Tank

The Facility will have a 20,000 gallon diesel fuel vertical fixed roof storage tank for use in plant vehicles. A fuel dispensing station will be located adjacent to the storage tank. The tank will be equipped with conservation vent valves.

Tank System Design Data

Tank Shell Height = 14 ft
Tank Diameter = 16 ft

Emissions

Annual breathing and working emissions for the tank were calculated per EPA TANKS 4.09 (see attached). The maximum hourly VOC emissions from the tank are calculated using AP-42 described above.

EPA Tanks Summary:

Annual VOC Emissions: 1.01 lb/yr

Tank Maximum Hourly Emissions:

Emission factor:

$$L_w = 0.0010 M_v P_{va} Q$$

where:

Lw=	working loss, lb/hr		
Mv=	vapor molecular weight, lb/lb-mole	=	130 lb/lb-mole
Pva=	vapor pressure at time of tank filling, psia	=	0.022 psia
Q=	hourly throughput, bbl	=	1.41 bbl

Emission factor: 4.0E-03 lb/hr

VOC = 4.0E-03 lb/hr

VOC = 5.1E-04 tons/yr

S48 2,000 Gallon Diesel Fuel Storage Tank

The Facility will have a 2,000 gallon horizontal storage tank for diesel fuel for use in the Emergency Diesel Fuel-Fired Generator. The tank will be equipped with conservation vent valves.

Tank System Design Data

Tank Shell Height = 12 ft
Tank Diameter = 10 ft

Emissions

Annual breathing and working emissions for the tank were calculated per EPA TANKS 4.09 (see attached). The maximum hourly VOC emissions from the tank are calculated using AP-42 described above.

EPA Tanks Summary:

Annual VOC Emissions: 2.24 lb/yr

Tank Maximum Hourly Emissions:

Emission factor:

$$L_w = 0.0010 M_v P_{va} Q$$

where:

Lw=	working loss, lb/hr		
Mv=	vapor molecular weight, lb/lb-mole	=	130 lb/lb-mole
Pva=	vapor pressure at time of tank filling, psia	=	0.022 psia
Q=	hourly throughput, bbl	=	0.14 bbl

Emission factor: 3.9E-04 lb/hr

VOC = 3.9E-04 lb/hr

VOC = 1.1E-03 tons/yr

S49 500 Gallon Diesel Fuel Storage Tank

The Facility will have a 500 gallon diesel fuel horizontal storage tank for use in the Emergency Diesel Fuel-Fired Firewater Pump. The tank will be equipped with conservation vent valves.

Tank System Design Data

Tank Shell Height = 6 ft
Tank Diameter = 9 ft

Emissions

Annual breathing and working emissions for the tank were calculated per EPA TANKS 4.09 (see attached). The maximum hourly VOC emissions from the tank are calculated using AP-42 described above.

EPA Tanks Summary:

Annual VOC Emissions: 0.38 lb/yr

Tank Maximum Hourly Emissions:

Emission factor:

$$L_w = 0.0010 M_v P_{va} Q$$

where:

Lw=	working loss, lb/hr		
Mv=	vapor molecular weight, lb/lb-mole	=	130 lb/lb-mole
Pva=	vapor pressure at time of tank filling, psia	=	0.022 psia
Q=	hourly throughput, bbl	=	6.8E-03 bbl

Emission factor: 1.9E-05 lb/hr

VOC = 1.9E-05 lb/hr

VOC = 1.9E-04 tons/yr

S50 500 Gallon Unleaded Gasoline Storage Tank

The Facility will have a 500 gallon unleaded gasoline horizontal storage tank for use in plant vehicles. A fuel dispensing station will be located adjacent to the storage tank. The tank will be equipped with conservation vent valves.

Tank System Design Data

Tank Shell Height = 6 ft
Tank Diameter = 9 ft

Emissions

Annual breathing and working emissions for the tank were calculated per EPA TANKS 4.09 (see attached). The maximum hourly VOC emissions from the tank are calculated using AP-42 described above.

EPA Tanks Summary:

Annual VOC Emissions: 540 lb/yr

Tank Maximum Hourly Emissions:

Emission factor:

$$L_w = 0.0010 M_v P_{va} Q$$

where:

Lw=	working loss, lb/hr		
Mv=	vapor molecular weight, lb/lb-mole	=	66 lb/lb-mole
Pva=	vapor pressure at time of tank filling, psia	=	10.5 psia
Q=	hourly throughput, bbl	=	0.012 bbl

Emission factor: 8.5E-03 lb/hr

VOC = 8.5E-03 lb/hr

VOC = 0.27 tons/yr

S01, S02, and S03 Boiler HAP Emissions (each @ 530 MW for Entire Year)

Megawatts (Net) **530 MW**
 Load Condition 100%
 Megawatts (Gross) 576
 Coal flow (lb/hr) 636,158
 Coal Flow (tons/hr) 318
 Heat Input (MMBtu/hr, HHV) 5,216

Pollutant	Emission Factor	Emission Factor Units	Emission Rate (lb/hr)	Min. Control Efficiency	Notes	Controlled Emission Rate (lb/hr)	Emission Rate (tons/year)	Pollutant Code
HCl	2.7E-02	lb/MMBtu	1.4E+02	95%	A,F	--	31	7647-01-0
HCl	4.2E-02	lb/MMBtu	2.2E+02	95%	A,F	11	--	7647-01-1
HF	1.3E-02	lb/MMBtu	7.0E+01	95%	A,F	--	15	7664-39-3
HF	1.9E-02	lb/MMBtu	1.0E+02	95%	A,F	5.04	--	7664-39-4
Antimony (Sb)	1.4E-04	lb/MMBtu	7.3E-01	99%	A,G	7.3E-03	3.2E-02	
Arsenic (As)	3.1E-03	lb/MMBtu	1.6E+01	99%	A,G	1.6E-01	7.1E-01	
Beryllium (Be)	2.1E-04	lb/MMBtu	1.1E+00	99%	A,G	1.1E-02	4.8E-02	
Cadmium (Cd)	3.3E-05	lb/MMBtu	1.7E-01	99%	A,G	1.7E-03	7.5E-03	
Chromium (Cr)	1.4E-03	lb/MMBtu	7.3E+00	99%	A,G	7.3E-02	3.2E-01	
Cobalt (Co)	5.0E-04	lb/MMBtu	2.6E+00	99%	A,G	2.6E-02	1.1E-01	
Lead (Pb)	1.2E-03	lb/MMBtu	6.3E+00	99%	A,G	6.3E-02	2.7E-01	
Manganese (Mn)	1.3E-02	lb/MMBtu	6.8E+01	99%	A,G	6.8E-01	3.0E+00	
Mercury (Hg)	2.0E-05	lb/mwhr	1.2E-02		B	1.2E-02	5.0E-02	
Nickel (Ni)	1.4E-03	lb/MMBtu	7.3E+00	99%	A,G	7.3E-02	3.2E-01	
Selenium (Se)	2.0E-04	lb/MMBtu	1.0E+00	99%	A,G	1.0E-02	4.6E-02	
Formaldehyde	2.4E-04	lb/ton	7.6E-02		E	7.6E-02	3.3E-01	50-00-0
PAH - Biphenyl	1.7E-06	lb/ton	5.4E-04		D	5.4E-04	2.4E-03	92-52-4
PAH - Acenaphthene	5.1E-07	lb/ton	1.6E-04		D	1.6E-04	7.1E-04	83-32-9
PAH - Acenaphthylene	2.5E-07	lb/ton	8.0E-05		D	8.0E-05	3.5E-04	208-96-8
PAH - Anthracene	2.1E-07	lb/ton	6.7E-05		D	6.7E-05	2.9E-04	120-12-7
PAH - Benzo(a)anthracene	8.0E-08	lb/ton	2.5E-05		D	2.5E-05	1.1E-04	56-55-3
PAH - Benzo(a)pyrene	3.8E-08	lb/ton	1.2E-05		D	1.2E-05	5.3E-05	50-32-8
PAH - Benzo(b,.)fluoranthene	1.1E-07	lb/ton	3.5E-05		D	3.5E-05	1.5E-04	205-99-2
PAH - Benzo(j)fluoranthene	1.1E-07	lb/ton	3.5E-05		D	3.5E-05	1.5E-04	205-82-3
PAH - Benzo(k)fluoranthene	1.1E-07	lb/ton	3.5E-05		D	3.5E-05	1.5E-04	207-08-9
PAH - Benzo(g,h,i)perylene	2.7E-08	lb/ton	8.6E-06		D	8.6E-06	3.8E-05	191-24-2
PAH - Chrysene	1.0E-07	lb/ton	3.2E-05		D	3.2E-05	1.4E-04	218-01-9
PAH - Fluoranthene	7.1E-07	lb/ton	2.3E-04		D	2.3E-04	9.9E-04	206-44-0
PAH - Fluorene	9.1E-07	lb/ton	2.9E-04		D	2.9E-04	1.3E-03	86-73-7
PAH - Indeno(1,2,3-cd)pyrene	6.1E-08	lb/ton	1.9E-05		D	1.9E-05	8.5E-05	193-39-5
PAH - Naphthalene	1.3E-05	lb/ton	4.1E-03		D	4.1E-03	1.8E-02	91-20-3
PAH - Phenanthrene	2.7E-06	lb/ton	8.6E-04		D	8.6E-04	3.8E-03	85-01-8
PAH - Pyrene	3.3E-07	lb/ton	1.0E-04		D	1.0E-04	4.6E-04	129-00-0
PAH - 5-Methyl chrysene	2.2E-08	lb/ton	7.0E-06		D	7.0E-06	3.1E-05	3697-24-3
Acetaldehyde	5.7E-04	lb/ton	1.8E-01		E	1.8E-01	7.9E-01	75-07-0
Acetophenone	1.5E-05	lb/ton	4.8E-03		E	4.8E-03	2.1E-02	98-86-2
Acrolein	2.9E-04	lb/ton	9.2E-02		E	9.2E-02	4.0E-01	107-02-8
Benzene	1.3E-03	lb/ton	4.1E-01		E	4.1E-01	1.8E+00	71-43-2
Benzyl chloride	7.0E-04	lb/ton	2.2E-01		E	2.2E-01	9.8E-01	100-44-7
Bis(2-ethylhexyl)phthalate	7.3E-05	lb/ton	2.3E-02		E	2.3E-02	1.0E-01	117-81-7
Bromoform	3.9E-05	lb/ton	1.2E-02		E	1.2E-02	5.4E-02	75-25-2
Carbon disulfide	1.3E-04	lb/ton	4.1E-02		E	4.1E-02	1.8E-01	75-15-0
2-Chloroacetophenone	7.0E-06	lb/ton	2.2E-03		E	2.2E-03	9.8E-03	532-27-4
Chlorobenzene	2.2E-05	lb/ton	7.0E-03		E	7.0E-03	3.1E-02	108-90-7
Chloroform	5.9E-05	lb/ton	1.9E-02		E	1.9E-02	8.2E-02	67-66-3
Cumene	5.3E-06	lb/ton	1.7E-03		E	1.7E-03	7.4E-03	98-82-8
Cyanide	1.3E-05	lb/MMBtu	6.8E-02		H	6.8E-02	3.0E-01	57-12-5
2,4-Dinitrotoluene	2.8E-07	lb/ton	8.9E-05		E	8.9E-05	3.9E-04	121-14-2
Dimethyl sulfate	4.8E-05	lb/ton	1.5E-02		E	1.5E-02	6.7E-02	77-78-1
Ethyl benzene	9.4E-05	lb/ton	3.0E-02		E	3.0E-02	1.3E-01	100-41-4
Ethyl chloride	4.2E-05	lb/ton	1.3E-02		E	1.3E-02	5.9E-02	75-00-3
Ethylene dichloride	4.0E-05	lb/ton	1.3E-02		E	1.3E-02	5.6E-02	107-06-2

Ethylene dibromide	1.2E-06	lb/ton	3.8E-04		E	3.8E-04	1.7E-03	106-93-4
Hexane	6.7E-05	lb/ton	2.1E-02		E	2.1E-02	9.3E-02	110-54-3
Isophorone	5.8E-04	lb/ton	1.8E-01		E	1.8E-01	8.1E-01	78-59-1
Methyl bromide	1.6E-04	lb/ton	5.1E-02		E	5.1E-02	2.2E-01	74-95-3
Methyl chloride	5.3E-04	lb/ton	1.7E-01		E	1.7E-01	7.4E-01	74-87-3
Methyl ethyl ketone	3.9E-04	lb/ton	1.2E-01		E	1.2E-01	5.4E-01	78-93-3
Methyl hydrazine	1.7E-04	lb/ton	5.4E-02		E	5.4E-02	2.4E-01	60-34-4
Methyl methacrylate	2.0E-05	lb/ton	6.4E-03		E	6.4E-03	2.8E-02	80-62-6
Methyl tert butyl ether	3.5E-05	lb/ton	1.1E-02		E	1.1E-02	4.9E-02	1634-04-4
Methylene chloride	2.9E-04	lb/ton	9.2E-02		E	9.2E-02	4.0E-01	75-09-2
Phenol	1.6E-05	lb/ton	5.1E-03		E	5.1E-03	2.2E-02	108-95-2
Propionaldehyde	3.8E-04	lb/ton	1.2E-01		E	1.2E-01	5.3E-01	123-38-6
Tetrachloroethylene	4.3E-05	lb/ton	1.4E-02		E	1.4E-02	6.0E-02	127-18-4
Toluene	2.4E-04	lb/ton	7.6E-02		E	7.6E-02	3.3E-01	108-88-3
1,1,1-Trichloroethane	2.0E-05	lb/ton	6.4E-03		E	6.4E-03	2.8E-02	71-55-6
Styrene	2.5E-05	lb/ton	8.0E-03		E	8.0E-03	3.5E-02	100-42-5
Xylenes	3.7E-05	lb/ton	1.2E-02		E	1.2E-02	5.2E-02	1330-20-7
Vinyl acetate	7.6E-06	lb/ton	2.4E-03		E	2.4E-03	1.1E-02	108-05-4
2,3,7,8-TCDD	1.43E-11	lb/ton	4.5E-09		C	4.5E-09	2.0E-08	1746-01-6
					TOTAL	19	61	per boiler

A = Values based on avg plus one standard deviation from USGS Coalqual Database

B = Proposed emission limit

C = Emission Factor Source: AP-42, Table 1.1-12, 5th edition (9/98)

D = Emission Factor Source: AP-42, Table 1.1-13, 5th edition (9/98)

E = Emission Factor Source: AP-42, Table 1.1-14, 5th edition (9/98)

F = A 95% control efficiency of the uncontrolled emission rate was assumed based on backup documentation for the 2000 EPA Report to Congress evaluating HAP emissions from coal-fired boilers.

G = A 99% control efficiency was assumed based on the 2000 EPA Report to Congress evaluating HAP emissions from coal-fired boilers.

H = Emission Factor Source: EEI EPRI Subcommittee Recommendation

S01, S02, and S03 Boiler HAP Emissions (Oil Firing)

Heat Input (MMBtu/hr)	782
Fuel Heating Value (Btu/lb)	19,200
Fuel Density (lb/gal)	7.23
Fuel Flow (lb/hr)	40,729
Fuel Flow (gal/hr)	5,633

Pollutant	Emission Factor	Units	Notes	Emission Rate (lb/hr)
Arsenic	4.0	lb/MMBtu	J	3.1E-03
Beryllium	3.0	lb/MMBtu	J	2.3E-03
Cadmium	3.0	lb/MMBtu	J	2.3E-03
Chromium	3.0	lb/MMBtu	J	2.3E-03
Copper	6.0	lb/MMBtu	J	4.7E-03
Lead	9.0	lb/MMBtu	J	7.0E-03
Mercury	3.0	lb/MMBtu	J	2.3E-03
Manganese	6.0	lb/MMBtu	J	4.7E-03
Nickel	3.0	lb/MMBtu	J	2.3E-03
Selenium	15.0	lb/MMBtu	J	1.2E-02
Zinc	4.0	lb/MMBtu	J	3.1E-03
Benzene	2.14E-04	lb/10 ³ gallon	I	1.2E-03
Ethylbenzene	6.36E-05	lb/10 ³ gallon	I	3.6E-04
Formaldehyde	3.30E-02	lb/10 ³ gallon	I	1.9E-01
Napthalene	1.13E-03	lb/10 ³ gallon	I	6.4E-03
1,1,1-Trichlorethane	2.36E-04	lb/10 ³ gallon	I	1.3E-03
Toluene	6.20E-03	lb/10 ³ gallon	I	3.5E-02
o-Xylene	1.09E-04	lb/10 ³ gallon	I	6.1E-04
Acenaphthene	2.11E-05	lb/10 ³ gallon	I	1.2E-04
Acenaphthylene	2.53E-07	lb/10 ³ gallon	I	1.4E-06
Anthracene	1.22E-06	lb/10 ³ gallon	I	6.9E-06
Benz(a)anthracene	4.01E-06	lb/10 ³ gallon	I	2.3E-05
Benzo(b,k)fluoranthene	1.48E-06	lb/10 ³ gallon	I	8.3E-06
Benzo(g,h,i)perylene	2.26E-06	lb/10 ³ gallon	I	1.3E-05
Chrysene	2.38E-06	lb/10 ³ gallon	I	1.3E-05
Dibenzo(a,h) anthracene	1.67E-06	lb/10 ³ gallon	I	9.4E-06
Fluoranthene	4.84E-06	lb/10 ³ gallon	I	2.7E-05
Fluorene	4.47E-06	lb/10 ³ gallon	I	2.5E-05
Indo(1,2,3-cd)pyrene	2.14E-06	lb/10 ³ gallon	I	1.2E-05
Phenanthrene	1.05E-05	lb/10 ³ gallon	I	5.9E-05
Pyrene	4.25E-06	lb/10 ³ gallon	I	2.4E-05
OCDD	3.10E-09	lb/10 ³ gallon	I	1.7E-08

TOTAL 0.28 per boiler

I = Emission factor source: AP-42 Table 1.3-9 (9/98) for distillate oil
J = Emission factor source: AP-42 Table 1.3-10 (9/98) for distillate oil

S05 Auxiliary Boiler HAP Emissions

Heat Input (MMBtu/hr)	367
Fuel Heating Value (Btu/lb)	19,200
Fuel Density (lb/gal)	7.23
Fuel Flow (lb/hr)	19,115
Fuel Flow (gal/hr)	2,644
Annual Operating Hours	500
Annual Fuel (gal)	1,321,894

Pollutant	Emission Factor	Units	Notes	Emission Rates	
				lb/hr	tons/year
Arsenic	4.0	lb/MMBtu	J	1.5E-03	3.7E-04
Beryllium	3.0	lb/MMBtu	J	1.1E-03	2.8E-04
Cadmium	3.0	lb/MMBtu	J	1.1E-03	2.8E-04
Chromium	3.0	lb/MMBtu	J	1.1E-03	2.8E-04
Copper	6.0	lb/MMBtu	J	2.2E-03	5.5E-04
Lead	9.0	lb/MMBtu	J	3.3E-03	8.3E-04
Mercury	3.0	lb/MMBtu	J	1.1E-03	2.8E-04
Manganese	6.0	lb/MMBtu	J	2.2E-03	5.5E-04
Nickel	3.0	lb/MMBtu	J	1.1E-03	2.8E-04
Selenium	15.0	lb/MMBtu	J	5.5E-03	1.4E-03
Zinc	4.0	lb/MMBtu	J	1.5E-03	3.7E-04
Benzene	2.14E-04	lb/10 ³ gallon	I	5.7E-04	1.4E-04
Ethylbenzene	6.36E-05	lb/10 ³ gallon	I	1.7E-04	4.2E-05
Formaldehyde	3.30E-02	lb/10 ³ gallon	I	8.7E-02	2.2E-02
Napthalene	1.13E-03	lb/10 ³ gallon	I	3.0E-03	7.5E-04
1,1,1-Trichlorethane	2.36E-04	lb/10 ³ gallon	I	6.2E-04	1.6E-04
Toluene	6.20E-03	lb/10 ³ gallon	I	1.6E-02	4.1E-03
o-Xylene	1.09E-04	lb/10 ³ gallon	I	2.9E-04	7.2E-05
Acenaphthene	2.11E-05	lb/10 ³ gallon	I	5.6E-05	1.4E-05
Acenaphthylene	2.53E-07	lb/10 ³ gallon	I	6.7E-07	1.7E-07
Anthracene	1.22E-06	lb/10 ³ gallon	I	3.2E-06	8.1E-07
Benz(a)anthracene	4.01E-06	lb/10 ³ gallon	I	1.1E-05	2.7E-06
Benzo(b,k)fluoranthene	1.48E-06	lb/10 ³ gallon	I	3.9E-06	9.8E-07
Benzo(g,h,i)perylene	2.26E-06	lb/10 ³ gallon	I	6.0E-06	1.5E-06
Chrysene	2.38E-06	lb/10 ³ gallon	I	6.3E-06	1.6E-06
Dibenzo(a,h) anthracene	1.67E-06	lb/10 ³ gallon	I	4.4E-06	1.1E-06
Fluoranthene	4.84E-06	lb/10 ³ gallon	I	1.3E-05	3.2E-06
Fluorene	4.47E-06	lb/10 ³ gallon	I	1.2E-05	3.0E-06
Indo(1,2,3-cd)pyrene	2.14E-06	lb/10 ³ gallon	I	5.7E-06	1.4E-06
Phenanthrene	1.05E-05	lb/10 ³ gallon	I	2.8E-05	6.9E-06
Pyrene	4.25E-06	lb/10 ³ gallon	I	1.1E-05	2.8E-06
OCDD	3.10E-09	lb/10 ³ gallon	I	8.2E-09	2.0E-09
TOTAL				0.13	0.033

I = Emission factor source: AP-42 Table 1.3-9 (9/98) for distillate oil
J = Emission factor source: AP-42 Table 1.3-10 (9/98) for distillate oil

Cold Startup of 530 MW Boiler, Coal and #2 oil																	
Startup Time (hours)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Main Steam Flow (%MCR)		0	0	0	0	18	21	26	25	25	25	25	25	25	75	90	MAX
Coal Flow (pph)		0	0	0	9,940	19,880	39,760	79,520	159,040	159,040	159,040	159,040	159,040	159,040	477,119	572,542	636,158
Coal Flow (tons)		0	0	0	5	10	20	40	80	80	80	80	80	80	239	286	318
Distillate Fuel Flow (pph)		20,377	30,565	36,678	40,754	40,754	40,754	36,678	0	0	0	0	0	0	0	0	0
Distillate Fuel Flow (gallons)		2,818	4,228	5,073	5,637	5,637	5,637	5,073	0	0	0	0	0	0	0	0	0
Coal Heat Input (MMBtu/hr)		0	0	0	82	163	326	652	1,304	1,304	1,304	1,304	1,304	1,304	3,912	4,695	5,216
Distillate Heat Input (MMBtu/hr)		391	587	704	782	782	782	704	0	0	0	0	0	0	0	0	0
Total Heat Input (MMBtu/hr)		391	587	704	864	945	1,109	1,356	1,304	1,304	1,304	1,304	1,304	1,304	3,912	4,695	5,216
Stack Exit Temp. (°F)		60	86	112	138	164	190	216	242	268	297	165	165	165	165	165	165
Stack Exit Flow (acfm)		124,546	186,819	224,183	275,039	273,624	320,800	392,509	377,412	377,412	377,412	377,412	377,412	377,412	1,132,237	1,358,684	1,509,649
Stack Exit Moisture (% by wt.)		4.5	4.5	4.5	4.5	5.0	6.0	6.5	7.0	8.0	8.7	8.7	8.7	8.7	9.0	9.0	9.51
CO (lb/MMBtu)		0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.15	0.15	0.15
NOx (lb/MMBtu) before SCR		0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.25	0.25	0.25	0.25	0.25	0.25
NOx (lb/MMBtu) after SCR		0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.25	0.09	0.09	0.07	0.07	0.07
Max coal sulfur content (%)		0.66%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%	0.66%
Design coal sulfur content (%)		0.46%	0.46%	0.46%	0.46%	0.46%	0.46%	0.46%	0.46%	0.46%	0.46%	0.46%	0.46%	0.46%	0.46%	0.46%	0.46%
Max distillate sulfur content (%)		1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05	1.5E-05
SO2 (lb/MMBtu) before scrubber		1.6E-03	1.6E-03	1.6E-03	0.11	0.19	0.33	0.54	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
SO2 (lb/MMBtu) after scrubber		1.6E-03	1.6E-03	1.6E-03	0.11	0.19	0.33	0.54	1.12	1.12	1.12	0.56	0.12	0.09	0.09	0.09	0.09
Coal ash content (%)		5.31%	5.31%	5.31%	5.31%	5.31%	5.31%	5.31%	5.31%	5.31%	5.31%	5.31%	5.31%	5.31%	5.31%	5.31%	5.31%
Distillate ash content (%)		0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%
PM total (lb/MMBtu) after baghouse		0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038
PM10 total (lb/MMBtu) after baghouse		0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038
PM filterable (lb/MMBtu) after baghouse		0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
PM10 filterable (lb/MMBtu) after baghouse		0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
VOC (lb/MMBtu)		0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	3.6E-03	3.6E-03	3.6E-03
lead (lb/MMBtu)		0	0	0	1.7E-06	3.1E-06	5.3E-06	8.7E-06	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05	1.8E-05
fluoride (as HF) (lb/MMBtu)		0	0	0	1.8E-03	3.3E-03	5.7E-03	9.3E-03	1.9E-02	1.9E-02	1.9E-02	1.9E-02	9.7E-04	9.7E-04	9.7E-04	9.7E-04	9.7E-04
H2SO4 (lb/MMBtu) before scrubber		6.0E-05	6.0E-05	6.0E-05	4.1E-03	7.4E-03	0.013	0.021	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043
H2SO4 (lb/MMBtu) after scrubber		6.0E-05	6.0E-05	6.0E-05	4.1E-03	7.4E-03	0.013	0.021	0.043	0.043	0.043	0.043	7.0E-03	4.8E-03	3.4E-03	3.4E-03	3.4E-03
Hg (lb/MMBtu)		0	0	0	3.5E-06	6.4E-06	1.1E-05	1.8E-05	3.7E-05	3.7E-05	3.7E-05	3.7E-05	2.5E-05	2.5E-05	2.5E-05	2.5E-05	2.5E-05
Ammonia (ppm)		0	0	0	0	0	0	0	0	0	0	10	10	10	5	5	5
HCl (lb/MMBtu)		0	0	0	3.9E-03	7.1E-03	1.2E-02	2.0E-02	4.1E-02	4.1E-02	4.1E-02	4.1E-02	2.1E-03	2.1E-03	2.1E-03	2.1E-03	2.1E-03
CO Emissions (lb/hr)		176.1	264.1	316.9	388.8	425.5	498.8	610.3	586.9	586.9	586.9	586.9	586.9	586.9	586.9	704.2	782.5
NOx Emissions (lb/hr)		176.1	264.1	316.9	388.8	425.5	498.8	610.3	586.9	586.9	586.9	326.0	117.4	117.4	273.9	328.6	365.2
SO2 Emissions (lb/hr)		0.6	0.9	1.1	92.5	183.8	366.4	731.4	1,460.6	1,460.6	1,460.6	730.3	156.5	117.4	352.1	422.5	469.5
PM Total Emissions (lb/hr)		14.9	22.3	26.8	32.8	35.9	42.1	51.5	49.6	49.6	49.6	49.6	49.6	49.6	148.7	178.4	198.2
PM10 Total Emissions (lb/hr)		14.9	22.3	26.8	32.8	35.9	42.1	51.5	49.6	49.6	49.6	49.6	49.6	49.6	148.7	178.4	198.2
PM Filterable Emissions (lb/hr)		5.9	8.8	10.6	13.0	14.2	16.6	20.3	19.6	19.6	19.6	19.6	19.6	19.6	58.7	70.4	78.2
PM10 Filterable Emissions (lb/hr)		5.9	8.8	10.6	13.0	14.2	16.6	20.3	19.6	19.6	19.6	19.6	19.6	19.6	58.7	70.4	78.2
VOC Emissions (lb/hr)		3.9	5.9	7.0	8.6	9.5	11.1	13.6	13.0	13.0	13.0	13.0	13.0	13.0	14.1	16.9	18.8
lead (lb/hr)		0	0	0	0.001	0.0029	0.006	0.012	0.023	0.023	0.023	0.023	0.023	0.023	0.070	0.085	0.094
HF (lb/hr)		0.00	0.00	0.00	1.58	3.15	6.30	12.60	25.21	25.21	25.21	25.21	1.26	1.26	3.78	4.54	5.04
H2SO4 (lb/hr)		0.023	0.035	0.042	3.54	7.03	14.02	27.99	55.91	55.91	55.91	55.91	9.13	6.22	13.30	15.96	17.74
Hg (lb/hr)		0	0	0	0	6.0E-03	0.012	0.024	0.048	0.048	0.048	0.048	0.033	0.033	0.10	0.12	0.13
ammonia (lb/hr)		0	0	0	0	0	0	0	0	0	0	45	45	45	23	23	23
HCl (lb/hr)		0.00	0.00	0.00	3.34	6.68	13.37	26.73	53.47	53.47	53.47	53.47	2.74	2.74	8.22	9.86	10.95
Allow for three hours for start-up and stabilization of the dry FGD system, SCR, and ammonia feed systems.																	

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	S46
City:	White Pine County
State:	Nevada
Company:	White Pine Energy Associates
Type of Tank:	Vertical Fixed Roof Tank
Description:	330,000 Gallon #2 Oil Fuel Tank

Tank Dimensions

Shell Height (ft):	40.00
Diameter (ft):	39.00
Liquid Height (ft) :	37.00
Avg. Liquid Height (ft):	18.50
Volume (gallons):	330,000.00
Turnovers:	15.00
Net Throughput(gal/yr):	4,950,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft)	0.00
Radius (ft) (Dome Roof)	39.00

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Ely, Nevada (Avg Atmospheric Pressure = 11.73 psia)

TANKS 4.0.9d

Emissions Report - Detail Format

Liquid Contents of Storage Tank

S46 - Vertical Fixed Roof Tank

White Pine County, Nevada

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	Jan	36.86	30.44	43.28	44.59	0.0031	0.0031	0.0036	130.0000			188.00	Option 1: VP40 = .0031
Distillate fuel oil no. 2	Feb	39.42	33.04	45.79	44.59	0.0031	0.0031	0.0039	130.0000			188.00	Option 1: VP40 = .0031
Distillate fuel oil no. 2	Mar	42.11	35.41	48.81	44.59	0.0034	0.0031	0.0043	130.0000			188.00	Option 1: VP40 = .0031 VP50 = .0045
Distillate fuel oil no. 2	Apr	45.70	37.93	53.47	44.59	0.0039	0.0031	0.0052	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0065
Distillate fuel oil no. 2	May	50.02	41.46	58.57	44.59	0.0045	0.0033	0.0062	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0065
Distillate fuel oil no. 2	Jun	54.33	44.75	63.92	44.59	0.0054	0.0038	0.0075	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0065
Distillate fuel oil no. 2	Jul	57.80	48.01	67.59	44.59	0.0061	0.0042	0.0084	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0065
Distillate fuel oil no. 2	Aug	56.54	47.26	65.81	44.59	0.0058	0.0041	0.0080	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0065
Distillate fuel oil no. 2	Sep	52.10	43.17	61.02	44.59	0.0049	0.0035	0.0068	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0065
Distillate fuel oil no. 2	Oct	46.89	38.99	54.80	44.59	0.0041	0.0031	0.0055	130.0000			188.00	Option 1: VP40 = .0031 VP50 = .0045
Distillate fuel oil no. 2	Nov	41.15	34.67	47.62	44.59	0.0033	0.0031	0.0042	130.0000			188.00	Option 1: VP40 = .0031 VP50 = .0045
Distillate fuel oil no. 2	Dec	37.19	30.94	43.44	44.59	0.0031	0.0031	0.0036	130.0000			188.00	Option 1: VP40 = .0031

TANKS 4.0.9d **Emissions Report - Detail Format** **Detail Calculations (AP-42)**

S46 - Vertical Fixed Roof Tank **White Pine County, Nevada**

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	3.1450	2.7905	3.5387	4.5555	5.9290	7.5952	8.9363	8.1233	6.5088	4.9789	3.1778	3.0483
Vapor Space Volume (cu ft):	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610
Vapor Density (lb/cu ft):	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Vapor Space Expansion Factor:	0.0466	0.0460	0.0484	0.0566	0.0622	0.0698	0.0709	0.0671	0.0649	0.0575	0.0467	0.0452
Vented Vapor Saturation Factor:	0.9960	0.9960	0.9957	0.9950	0.9943	0.9932	0.9923	0.9926	0.9937	0.9948	0.9958	0.9960
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610	28,879.2610
Tank Diameter (ft):	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000
Vapor Space Outage (ft):	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750
Tank Shell Height (ft):	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000
Average Liquid Height (ft):	18.5000	18.5000	18.5000	18.5000	18.5000	18.5000	18.5000	18.5000	18.5000	18.5000	18.5000	18.5000
Roof Outage (ft):	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750
Roof Outage (Dome Roof)												
Roof Outage (ft):	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750	2.6750
Dome Radius (ft):	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000
Shell Radius (ft):	19.5000	19.5000	19.5000	19.5000	19.5000	19.5000	19.5000	19.5000	19.5000	19.5000	19.5000	19.5000
Vapor Density												
Vapor Density (lb/cu ft):	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Vapor Molecular Weight (lb/lb-mole):	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0031	0.0031	0.0034	0.0039	0.0045	0.0054	0.0061	0.0058	0.0049	0.0041	0.0033	0.0031
Daily Avg. Liquid Surface Temp. (deg. R):	496.5315	499.0866	501.7812	505.3709	509.6850	514.0004	517.4667	516.2063	511.7655	506.5648	500.8183	496.8623
Daily Average Ambient Temp. (deg. F):	24.5500	29.5000	34.5500	41.5000	50.5000	59.5000	67.5000	65.4500	56.2500	45.8500	34.1000	25.6000
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	810.6249	1,091.4088	1,443.2612	1,839.2142	2,102.8656	2,367.4687	2,327.4927	2,060.6687	1,768.1457	1,303.0279	873.7616	712.9057
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.0466	0.0460	0.0484	0.0566	0.0622	0.0698	0.0709	0.0671	0.0649	0.0575	0.0467	0.0452
Daily Vapor Temperature Range (deg. R):	25.6746	25.4991	26.8139	31.0747	34.2016	38.3412	39.1589	37.0968	35.7044	31.6184	25.9031	24.9934
Daily Vapor Pressure Range (psia):	0.0005	0.0008	0.0012	0.0021	0.0029	0.0037	0.0042	0.0038	0.0032	0.0024	0.0011	0.0005
Breather Vent Press. Setting Range(psia):	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0031	0.0031	0.0034	0.0039	0.0045	0.0054	0.0061	0.0058	0.0049	0.0041	0.0033	0.0031
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0031	0.0031	0.0031	0.0031	0.0033	0.0038	0.0042	0.0041	0.0035	0.0031	0.0031	0.0031
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0036	0.0039	0.0043	0.0052	0.0062	0.0075	0.0084	0.0080	0.0068	0.0055	0.0042	0.0036
Daily Avg. Liquid Surface Temp. (deg R):	496.5315	499.0866	501.7812	505.3709	509.6850	514.0004	517.4667	516.2063	511.7655	506.5648	500.8183	496.8623
Daily Min. Liquid Surface Temp. (deg R):	490.1129	492.7119	495.0777	497.6023	501.1346	504.4151	507.6770	506.9321	502.8394	498.6602	494.3426	490.6139
Daily Max. Liquid Surface Temp. (deg R):	502.9502	505.4614	508.4846	513.1396	518.2354	523.5857	527.2564	525.4805	520.6916	514.4694	507.2941	503.1107
Daily Ambient Temp. Range (deg. R):	30.3000	28.2000	27.7000	31.0000	33.6000	37.6000	39.0000	37.9000	35.3000	30.2000	30.2000	30.0000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	0.9960	0.9960	0.9957	0.9950	0.9943	0.9932	0.9923	0.9926	0.9937	0.9948	0.9958	0.9960
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.0031	0.0031	0.0034	0.0039	0.0045	0.0054	0.0061	0.0058	0.0049	0.0041	0.0033	0.0031
Vapor Space Outage (ft):	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750	24.1750
Working Losses (lb):	3.9580	3.9580	4.3354	4.9771	5.7494	6.8513	7.7365	7.4146	6.2806	5.1905	4.1633	3.9580
Vapor Molecular Weight (lb/lb-mole):	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0031	0.0031	0.0034	0.0039	0.0045	0.0054	0.0061	0.0058	0.0049	0.0041	0.0033	0.0031

Net Throughput (gal/mo.):	412,500.0000	412,500.0000	412,500.0000	412,500.0000	412,500.0000	412,500.0000	412,500.0000	412,500.0000	412,500.0000	412,500.0000	412,500.0000	412,500.0000
Annual Turnovers:	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000	15.0000
Turnover Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Maximum Liquid Volume (gal):	330,000.0000	330,000.0000	330,000.0000	330,000.0000	330,000.0000	330,000.0000	330,000.0000	330,000.0000	330,000.0000	330,000.0000	330,000.0000	330,000.0000
Maximum Liquid Height (ft):	37.0000	37.0000	37.0000	37.0000	37.0000	37.0000	37.0000	37.0000	37.0000	37.0000	37.0000	37.0000
Tank Diameter (ft):	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	7.1030	6.7486	7.8741	9.5325	11.6784	14.4466	16.6728	15.5380	12.7894	10.1694	7.3411	7.0063

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

S46 - Vertical Fixed Roof Tank
White Pine County, Nevada

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	64.57	62.33	126.90

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification
User Identification: S47
City: White Pine County
State: Nevada
Company: White Pine Energy Associates
Type of Tank: Vertical Fixed Roof Tank
Description: 20,000 Gallon Diesel Fuel Tank

Tank Dimensions
Shell Height (ft): 14.00
Diameter (ft): 16.00
Liquid Height (ft): 14.00
Avg. Liquid Height (ft): 14.00
Volume (gallons): 20,000.00
Turnovers: 2.00
Net Throughput (gal/yr): 40,000.00
Is Tank Heated (y/n): N

Paint Characteristics
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics
Type: Dome
Height (ft): 0.00
Radius (ft) (Dome Roof): 16.00

Breather Vent Settings
Vacuum Settings (psig): -0.03
Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: Ely, Nevada (Avg Atmospheric Pressure = 11.73 psia)

TANKS 4.0

Emissions Report - Detail Format

Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	Jan	36.86	30.44	43.28	44.59	0.0031	0.0031	0.0037	130.0000			188.00	Option 1: VP40 = .0031
Distillate fuel oil no. 2	Feb	39.42	33.04	45.79	44.59	0.0031	0.0031	0.0040	130.0000			188.00	Option 1: VP40 = .0031
Distillate fuel oil no. 2	Mar	42.11	35.41	48.81	44.59	0.0035	0.0031	0.0044	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Apr	45.70	37.93	53.47	44.59	0.0040	0.0031	0.0052	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	May	50.02	41.46	58.57	44.59	0.0046	0.0034	0.0062	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Jun	54.33	44.75	63.92	44.59	0.0054	0.0039	0.0074	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Jul	57.80	48.01	67.59	44.59	0.0060	0.0043	0.0083	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Aug	58.54	47.26	65.81	44.59	0.0058	0.0042	0.0078	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Sep	52.10	43.17	61.02	44.59	0.0050	0.0037	0.0067	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Oct	46.89	38.99	54.80	44.59	0.0042	0.0031	0.0055	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Nov	41.15	34.67	47.62	44.59	0.0034	0.0031	0.0043	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Dec	37.19	30.94	43.44	44.59	0.0031	0.0031	0.0037	130.0000			188.00	Option 1: VP40 = .0031

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	0.0241	0.0214	0.0281	0.0358	0.0488	0.0584	0.0684	0.0622	0.0506	0.0391	0.0254	0.0234
Vapor Space Volume (cu ft):	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549
Vapor Density (lb/cu ft):	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Vapor Space Expansion Factor:	0.0466	0.0461	0.0484	0.0566	0.0622	0.0698	0.0709	0.0671	0.0649	0.0575	0.0467	0.0452
Vented Vapor Saturation Factor:	0.9998	0.9998	0.9998	0.9998	0.9997	0.9997	0.9996	0.9997	0.9997	0.9998	0.9998	0.9998
Tank Vapor Space Volume												
Vapor Space Volume (cu ft):	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549	220.6549
Tank Diameter (ft):	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000
Vapor Space Outlet (ft):	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974
Tank Shell Height (ft):	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000
Average Liquid Height (ft):	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000	14.0000
Roof Outlet (ft):	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974
Roof Outlet (Dome Roof)												
Roof Outlet (ft):	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974
Dome Radius (ft):	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000	16.0000
Shell Radius (ft):	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000
Vapor Density												
Vapor Density (lb/cu ft):	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Vapor Molecular Weight (lb/lb-mole):	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):	0.0031	0.0031	0.0035	0.0040	0.0046	0.0054	0.0060	0.0058	0.0050	0.0042	0.0034	0.0031
Daily Avg. Liquid Surface Temp. (deg. R):	496.5315	499.0866	501.7812	505.3709	509.6850	514.0004	517.4667	516.2063	511.7655	506.5848	500.8183	496.8623
Daily Average Ambient Temp. (deg. F):	24.5500	29.5000	34.5500	41.5000	50.5000	59.5000	67.5000	65.4500	56.2500	45.8500	34.1000	25.6000
Ideal Gas Constant R												
(psia cu ft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Daily Total Solar Insulation												
Factor (Btu/sqft day):	810.8249	1,091.4088	1,443.2612	1,839.2142	2,102.8656	2,367.4687	2,327.4927	2,060.6687	1,768.1457	1,303.0279	873.7616	712.9057
Vapor Space Expansion Factor												
Vapor Space Expansion Factor	0.0466	0.0461	0.0484	0.0566	0.0622	0.0698	0.0709	0.0671	0.0649	0.0575	0.0467	0.0452
Daily Vapor Temperature Range (deg. R):	25.6746	25.4931	26.8139	31.0747	34.2016	38.3412	39.1589	37.0968	35.7044	31.6184	25.9031	24.9834
Daily Vapor Pressure Range (psia):	0.0006	0.0009	0.0013	0.0021	0.0027	0.0035	0.0040	0.0036	0.0031	0.0024	0.0012	0.0006
Breather Vent Press. Setting Range (psia):	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):	0.0031	0.0031	0.0035	0.0040	0.0046	0.0054	0.0060	0.0058	0.0050	0.0042	0.0034	0.0031
Vapor Pressure at Daily Minimum Liquid												
Surface Temperature (psia):	0.0031	0.0031	0.0031	0.0031	0.0034	0.0039	0.0043	0.0042	0.0037	0.0031	0.0031	0.0031
Vapor Pressure at Daily Maximum Liquid												
Surface Temperature (psia):	0.0037	0.0040	0.0044	0.0052	0.0062	0.0074	0.0083	0.0078	0.0067	0.0055	0.0043	0.0037
Daily Avg. Liquid Surface Temp. (deg. R):	496.5315	499.0866	501.7812	505.3709	509.6850	514.0004	517.4667	516.2063	511.7655	506.5848	500.8183	496.8623
Daily Min. Liquid Surface Temp. (deg. R):	490.1129	492.7119	495.0777	497.6023	501.1346	504.4151	507.8770	506.9321	502.8394	498.6602	494.3426	490.6139
Daily Max. Liquid Surface Temp. (deg. R):	502.9502	505.4614	508.4846	513.1396	518.2354	523.5957	527.2564	525.4805	520.8916	514.4694	507.2841	503.1107
Daily Ambient Temp. Range (deg. R):	30.3000	28.2000	27.7000	31.0000	33.6000	37.6000	39.0000	37.9000	37.9000	35.3000	30.2000	30.0000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	0.9998	0.9998	0.9998	0.9998	0.9997	0.9997	0.9996	0.9997	0.9997	0.9998	0.9998	0.9998
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):	0.0031	0.0031	0.0035	0.0040	0.0046	0.0054	0.0060	0.0058	0.0050	0.0042	0.0034	0.0031
Vapor Space Outlet (ft):	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974	1.0974
Working Losses (lb):	0.0320	0.0320	0.0363	0.0412	0.0478	0.0554	0.0522	0.0596	0.0513	0.0429	0.0351	0.0320
Vapor Molecular Weight (lb/lb-mole):	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000
Vapor Pressure at Daily Average Liquid												

TANKS 4.0 Emissions Report - Detail Format Detail Calculations (AP-42)- (Continued)

Surface Temperature (psia):	0.0031	0.0031	0.0035	0.0040	0.0046	0.0054	0.0060	0.0068	0.0050	0.0042	0.0034	0.0031
Net Throughput (gal/mo.):	3,333.3333	3,333.3333	3,333.3333	3,333.3333	3,333.3333	3,333.3333	3,333.3333	3,333.3333	3,333.3333	3,333.3333	3,333.3333	3,333.3333
Annual Turnovers:	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000
Turnover Factor:	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Maximum Liquid Volume (gal):	20,000,0000	20,000,0000	20,000,0000	20,000,0000	20,000,0000	20,000,0000	20,000,0000	20,000,0000	20,000,0000	20,000,0000	20,000,0000	20,000,0000
Maximum Liquid Height (ft):	14,0000	14,0000	14,0000	14,0000	14,0000	14,0000	14,0000	14,0000	14,0000	14,0000	14,0000	14,0000
Tank Diameter (ft):	16,0000	16,0000	16,0000	16,0000	16,0000	16,0000	16,0000	16,0000	16,0000	16,0000	16,0000	16,0000
Working Loss Product Factor:	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Total Losses (lb):	0.0561	0.0534	0.0644	0.0770	0.0947	0.1137	0.1306	0.1218	0.1019	0.0820	0.0605	0.0554

TANKS 4.0 **Emissions Report - Detail Format** **Individual Tank Emission Totals**

Emissions Report for: January , February , March , April , May , June , July , August , September , October , November , December

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Distillate fuel oil no. 2	0.53	0.48	1.01

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification
User Identification: S48
City: White Pine County
State: Nevada
Company: White Pine Energy Associates
Type of Tank: Horizontal Tank
Description: 2,000 Gallon Diesel Fuel Tank

Tank Dimensions
Shell Length (ft): 10.00
Diameter (ft): 12.00
Volume (gallons): 2,000.00
Turnovers: 25.00
Net Throughput (gal/yr): 50,000.00
Is Tank Heated (y/n): N
Is Tank Underground (y/n): N

Paint Characteristics
Shell Color/Shade: White/White
Shell Condition: Good

Breather Vent Settings
Vacuum Settings (psig): -0.03
Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: Ely, Nevada (Avg Atmospheric Pressure = 11.73 psia)

TANKS 4.0 Emissions Report - Detail Format Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	Jan	36.86	30.44	43.28	44.59	0.0031	0.0031	0.0037	130.0000			188.00	Option 1: VP40 = .0031
Distillate fuel oil no. 2	Feb	39.42	33.04	45.79	44.59	0.0031	0.0031	0.0040	130.0000			188.00	Option 1: VP40 = .0031
Distillate fuel oil no. 2	Mar	42.11	35.41	48.81	44.59	0.0035	0.0031	0.0044	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Apr	45.70	37.93	53.47	44.59	0.0040	0.0031	0.0052	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	May	50.02	41.46	58.57	44.59	0.0046	0.0034	0.0062	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Jun	54.33	44.75	63.92	44.59	0.0054	0.0039	0.0074	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Jul	57.80	48.01	67.59	44.59	0.0060	0.0043	0.0083	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Aug	56.54	47.26	65.81	44.59	0.0058	0.0042	0.0078	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Sep	52.10	43.17	61.02	44.59	0.0050	0.0037	0.0067	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Oct	46.89	38.99	54.80	44.59	0.0042	0.0031	0.0055	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Nov	41.15	34.67	47.62	44.59	0.0034	0.0031	0.0043	130.0000			188.00	Option 5: A=12.101, B=8907
Distillate fuel oil no. 2	Dec	37.19	30.94	43.44	44.59	0.0031	0.0031	0.0037	130.0000			188.00	Option 1: VP40 = .0031

TANKS 4.0

Emissions Report - Detail Format

Detail Calculations (AP-42)

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	0.0787	0.0698	0.0918	0.1168	0.1528	0.1904	0.2229	0.2027	0.1649	0.1276	0.0829	0.0763
Vapor Space Volume (cu ft):	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652
Vapor Density (lb/cu ft):	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Vapor Space Expansion Factor:	0.0466	0.0461	0.0484	0.0566	0.0622	0.0698	0.0709	0.0686	0.0649	0.0575	0.0467	0.0452
Vented Vapor Saturation Factor:	0.9990	0.9990	0.9989	0.9987	0.9985	0.9983	0.9981	0.9982	0.9984	0.9987	0.9989	0.9990
Tank Vapor Space Volume	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652	720.3652
Tank Diameter (ft):	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000
Effective Diameter (ft):	12.3639	12.3639	12.3639	12.3639	12.3639	12.3639	12.3639	12.3639	12.3639	12.3639	12.3639	12.3639
Vapor Space Outage (ft):	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000
Tank Shell Length (ft):	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000
Vapor Density	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Vapor Molecular Weight (lb/lb-mole):	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0031	0.0031	0.0035	0.0040	0.0046	0.0054	0.0060	0.0058	0.0050	0.0042	0.0034	0.0031
Daily Avg. Liquid Surface Temp. (deg. R):	496.5315	499.0866	501.7812	505.3709	509.6850	514.0004	517.4667	516.2063	511.7655	506.5648	500.8183	496.8623
Daily Average Ambient Temp. (deg. F):	24.5500	29.5000	34.5500	41.5000	50.5000	59.5000	67.5000	65.4500	56.2500	45.8500	34.1000	25.6000
Ideal Gas Constant R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	810.6249	1,091.4088	1,443.2612	1,839.2142	2,102.8556	2,387.4687	2,327.4927	2,060.6687	1,768.1457	1,303.0279	873.7616	712.9057
Vapor Space Expansion Factor	0.0466	0.0461	0.0484	0.0566	0.0622	0.0698	0.0709	0.0686	0.0649	0.0575	0.0467	0.0452
Vapor Space Temperature Range (deg. R):	25.6746	25.4931	26.8139	31.0747	34.2016	38.3412	39.1589	37.0968	35.7044	31.6184	25.9031	24.9834
Daily Vapor Pressure Range (psia):	0.0006	0.0009	0.0013	0.0021	0.0027	0.0035	0.0040	0.0036	0.0031	0.0024	0.0012	0.0006
Breather Vent Press. Settling Range (psia):	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0031	0.0031	0.0035	0.0040	0.0046	0.0054	0.0060	0.0058	0.0050	0.0042	0.0034	0.0031
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0031	0.0031	0.0031	0.0031	0.0034	0.0039	0.0043	0.0042	0.0037	0.0031	0.0031	0.0031
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0037	0.0040	0.0044	0.0052	0.0062	0.0074	0.0083	0.0078	0.0067	0.0055	0.0043	0.0037
Daily Avg. Liquid Surface Temp. (deg. R):	496.5315	499.0866	501.7812	505.3709	509.6850	514.0004	517.4667	516.2063	511.7655	506.5648	500.8183	496.8623
Daily Min. Liquid Surface Temp. (deg. R):	490.1129	492.7119	495.0777	497.6023	501.1346	504.4151	507.6770	506.9321	502.8394	498.6602	494.3426	490.6139
Daily Max. Liquid Surface Temp. (deg. R):	502.9502	506.4614	508.4846	513.1396	518.2354	523.5857	527.2564	525.4805	520.6916	514.4694	507.2941	503.1107
Daily Ambient Temp. Range (deg. R):	30.3000	28.2000	27.7000	31.0000	33.6000	37.6000	39.0000	37.9000	37.9000	35.3000	30.2000	30.0000
Vented Vapor Saturation Factor	0.9990	0.9990	0.9989	0.9987	0.9985	0.9983	0.9981	0.9982	0.9984	0.9987	0.9989	0.9990
Vented Vapor Saturation Factor:	0.0031	0.0031	0.0035	0.0040	0.0046	0.0054	0.0060	0.0058	0.0050	0.0042	0.0034	0.0031
Vapor Space Outage (ft):	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000
Working Losses (lb):	0.0400	0.0400	0.0454	0.0515	0.0598	0.0692	0.0777	0.0745	0.0642	0.0537	0.0439	0.0400
Vapor Molecular Weight (lb/lb-mole):	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0031	0.0031	0.0035	0.0040	0.0046	0.0054	0.0060	0.0058	0.0050	0.0042	0.0034	0.0031
Net Throughput (gal/mo.):	4,166.6667	4,166.6667	4,166.6667	4,166.6667	4,166.6667	4,166.6667	4,166.6667	4,166.6667	4,166.6667	4,166.6667	4,166.6667	4,166.6667
Annual Turnovers:	25.0000	25.0000	25.0000	25.0000	25.0000	25.0000	25.0000	25.0000	25.0000	25.0000	25.0000	25.0000
Turnover Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Tank Diameter (ft):	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000	12.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)- (Continued)

Total Losses (lb):	0.1187	0.1098	0.1372	0.1683	0.2125	0.2596	0.3006	0.2772	0.2291	0.1812	0.1268	0.1163
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TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January , February , March , April , May , June , July , August , September , October , November , December

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Distillate fuel oil no. 2	0.66	1.58	2.24

TANKS 4.0 Emissions Report - Detail Format Tank Identification and Physical Characteristics

Identification
User Identification: S49
City: White Pine County
State: Nevada
Company: White Pine Energy Associates
Type of Tank: Horizontal Tank
Description: 500 Gallon Diesel Fuel Tank

Tank Dimensions
Shell Length (ft): 8.83
Diameter (ft): 6.00
Volume (gallons): 500.00
Turnovers: 5.00
Net Throughput (gal/yr): 2,500.00
Is Tank Heated (y/n): N
Is Tank Underground (y/n): N

Paint Characteristics
Shell Color/Shade: White/White
Shell Condition: Good

Breather Vent Settings
Vacuum Settings (psig): -0.03
Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: Ely, Nevada (Avg Atmospheric Pressure = 11.73 psia)

TANKS 4.0 Emissions Report - Detail Format Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)			Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Basis for Vapor Pressure Calculations		Mol. Weight
		Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.						
Distillate fuel oil no. 2	Jan	36.86	30.44	43.28	44.59	0.0031	0.0031	0.0037	0.0031	0.0037	130.0000			Option 1: VP40 = .0031		188.00
Distillate fuel oil no. 2	Feb	39.42	33.04	45.79	44.59	0.0031	0.0031	0.0040	0.0031	0.0040	130.0000			Option 1: VP40 = .0031		188.00
Distillate fuel oil no. 2	Mar	42.11	35.41	48.81	44.59	0.0035	0.0031	0.0044	0.0031	0.0044	130.0000			Option 5: A=12.101, B=8907		188.00
Distillate fuel oil no. 2	Apr	45.70	37.93	53.47	44.59	0.0040	0.0031	0.0052	0.0031	0.0052	130.0000			Option 5: A=12.101, B=8907		188.00
Distillate fuel oil no. 2	May	50.02	41.46	58.57	44.59	0.0046	0.0034	0.0062	0.0034	0.0062	130.0000			Option 5: A=12.101, B=8907		188.00
Distillate fuel oil no. 2	Jun	54.33	44.75	63.92	44.59	0.0054	0.0039	0.0074	0.0039	0.0074	130.0000			Option 5: A=12.101, B=8907		188.00
Distillate fuel oil no. 2	Jul	57.80	48.01	67.59	44.59	0.0060	0.0043	0.0083	0.0043	0.0083	130.0000			Option 5: A=12.101, B=8907		188.00
Distillate fuel oil no. 2	Aug	56.54	47.26	65.81	44.59	0.0058	0.0042	0.0076	0.0042	0.0076	130.0000			Option 5: A=12.101, B=8907		188.00
Distillate fuel oil no. 2	Sep	52.10	43.17	61.02	44.59	0.0050	0.0037	0.0067	0.0037	0.0067	130.0000			Option 5: A=12.101, B=8907		188.00
Distillate fuel oil no. 2	Oct	46.89	38.99	54.80	44.59	0.0042	0.0031	0.0055	0.0031	0.0055	130.0000			Option 5: A=12.101, B=8907		188.00
Distillate fuel oil no. 2	Nov	41.15	34.67	47.62	44.59	0.0034	0.0031	0.0043	0.0031	0.0043	130.0000			Option 5: A=12.101, B=8907		188.00
Distillate fuel oil no. 2	Dec	37.19	30.94	43.44	44.59	0.0031	0.0031	0.0037	0.0031	0.0037	130.0000			Option 1: VP40 = .0031		188.00

TANKS 4.0

Emissions Report - Detail Format

Detail Calculations (AP-42)

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	0.0174	0.0154	0.0203	0.0258	0.0338	0.0421	0.0483	0.0448	0.0304	0.0262	0.0183	0.0168
Vapor Space Volume (cu ft):	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206
Vapor Density (lb/cu ft):	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Vapor Space Expansion Factor:	0.0466	0.0461	0.0484	0.0566	0.0622	0.0688	0.0709	0.0671	0.0649	0.0657	0.0647	0.0652
Vented Vapor Saturation Factor:	0.9995	0.9995	0.9994	0.9994	0.9993	0.9991	0.9990	0.9991	0.9992	0.9993	0.9995	0.9995
Tank Vapor Space Volume	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206	159.0206
Tank Space Volume (cu ft):	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000
Tank Diameter (ft):	8.2153	8.2153	8.2153	8.2153	8.2153	8.2153	8.2153	8.2153	8.2153	8.2153	8.2153	8.2153
Effective Diameter (ft):	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000
Vapor Space Outage (ft):	8.8300	8.8300	8.8300	8.8300	8.8300	8.8300	8.8300	8.8300	8.8300	8.8300	8.8300	8.8300
Tank Shell Length (ft):												
Vapor Density	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Vapor Molecular Weight (lb/lb-mole):	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0031	0.0031	0.0035	0.0040	0.0046	0.0054	0.0060	0.0058	0.0050	0.0042	0.0034	0.0031
Daily Avg. Liquid Surface Temp. (deg. R):	496.5315	499.0866	501.7812	505.3709	509.6850	514.0004	517.4667	516.2063	511.7655	506.5648	500.8183	496.8623
Daily Average Ambient Temp. (deg. F):	24.5500	29.5000	34.5500	41.5000	50.5000	59.5000	67.5000	65.4500	56.2500	45.8500	34.1000	25.6000
Ideal Gas Constant R												
(psia cu ft / (lb-mol-deg R):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608	504.2608
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	810.8249	1,091.4088	1,443.2612	1,839.2142	2,102.8656	2,367.4687	2,327.4927	2,060.8687	1,768.1457	1,303.0279	873.7616	712.9057
Vapor Space Expansion Factor	0.0466	0.0461	0.0484	0.0566	0.0622	0.0688	0.0709	0.0671	0.0649	0.0657	0.0647	0.0652
Vapor Space Volume (cu ft):	25.6746	25.4991	28.8139	31.0747	34.2016	38.3412	39.1589	37.0968	35.7044	31.6184	25.9031	24.9834
Daily Vapor Temperature Range (deg. R):	0.0006	0.0009	0.0013	0.0021	0.0027	0.0035	0.0040	0.0035	0.0031	0.0024	0.0012	0.0006
Daily Vapor Pressure Range (psia):	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Breather Vent Press. Setting Range (psia):												
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0031	0.0031	0.0035	0.0040	0.0046	0.0054	0.0060	0.0058	0.0050	0.0042	0.0034	0.0031
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0031	0.0031	0.0031	0.0031	0.0034	0.0039	0.0043	0.0042	0.0037	0.0031	0.0031	0.0031
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0037	0.0040	0.0044	0.0052	0.0062	0.0074	0.0083	0.0078	0.0067	0.0055	0.0043	0.0037
Daily Avg. Liquid Surface Temp. (deg. R):	496.5315	499.0866	501.7812	505.3709	509.6850	514.0004	517.4667	516.2063	511.7655	506.5648	500.8183	496.8623
Daily Min. Liquid Surface Temp. (deg. R):	490.1129	492.7119	495.0777	497.6023	501.1346	504.4151	507.6770	506.9321	502.8394	498.5602	494.3426	490.6139
Daily Max. Liquid Surface Temp. (deg. R):	502.9502	505.4614	506.4846	513.1396	518.2354	523.5857	527.2564	523.4805	520.6916	514.4694	507.2941	503.1107
Daily Ambient Temp. Range (deg. R):	30.3000	28.2000	27.7000	31.0000	33.6000	37.6000	39.0000	37.9000	37.9000	35.3000	30.2000	30.0000
Vented Vapor Saturation Factor	0.9995	0.9995	0.9994	0.9994	0.9993	0.9991	0.9990	0.9991	0.9992	0.9993	0.9995	0.9995
Vented Vapor Saturation Factor:												
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0031	0.0031	0.0035	0.0040	0.0046	0.0054	0.0060	0.0058	0.0050	0.0042	0.0034	0.0031
Vapor Space Outage (ft):	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000
Working Losses (lb):	0.0020	0.0020	0.0023	0.0026	0.0030	0.0035	0.0039	0.0037	0.0032	0.0027	0.0022	0.0020
Vapor Molecular Weight (lb/lb-mole):	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0031	0.0031	0.0035	0.0040	0.0046	0.0054	0.0060	0.0058	0.0050	0.0042	0.0034	0.0031
Net Throughput (gal/mo.):	208.3333	208.3333	208.3333	208.3333	208.3333	208.3333	208.3333	208.3333	208.3333	208.3333	208.3333	208.3333
Annual Turnovers:	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000
Turnover Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Tank Diameter (ft):	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000	6.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)- (Continued)

Total Losses (lb):	0.0194	0.0174	0.0225	0.0284	0.0367	0.0455	0.0531	0.0485	0.0396	0.0309	0.0205	0.0188
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TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January , February , March , April , May , June , July , August , September , October , November , December

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Distillate fuel oil no. 2	0.03	0.35	0.38

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification
User Identification: S50
City: White Pine County
State: Nevada
Company: White Pine Energy Associates
Type of Tank: Horizontal Tank
Description: 500 Gallon Unleaded Gasoline Tank

Tank Dimensions
Shell Length (ft): 6.00
Diameter (ft): 9.00
Volume (gallons): 500.00
Turnovers: 9.00
Net Throughput (gal/yr): 4,500.00
Is Tank Heated (y/n): N
Is Tank Underground (y/n): N

Paint Characteristics
Shell Color/Shade: White/White
Shell Condition: Good

Breather Vent Settings
Vacuum Settings (psig): -0.03
Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: Ely, Nevada (Avg Atmospheric Pressure = 11.73 psia)

TANKS 4.0 Emissions Report - Detail Format Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 10)	Jan	36.86	30.44	43.28	44.59	3.2423	2.8239	3.7094	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Feb	39.42	33.04	45.79	44.59	3.4222	2.9877	3.9064	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Mar	42.11	35.41	48.81	44.59	3.6205	3.1434	4.1545	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Apr	45.70	37.93	53.47	44.59	3.8982	3.3167	4.5615	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	May	50.02	41.46	56.57	44.59	4.2566	3.5721	5.0431	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Jun	54.33	44.75	63.92	44.59	4.6401	3.8233	5.5917	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Jul	57.80	48.01	67.59	44.59	4.9679	4.0871	5.9950	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Aug	56.54	47.26	65.81	44.59	4.8467	4.0256	5.7971	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Sep	52.10	43.17	61.02	44.59	4.4382	3.7009	5.2893	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Oct	46.89	38.99	54.80	44.59	3.9566	3.3916	4.6635	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Nov	41.15	34.67	47.62	44.59	3.5486	3.0943	4.0554	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 10)	Dec	37.19	30.94	43.44	44.59	3.2651	2.8549	3.7218	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	23,4283	24,4134	30,6430	36,1591	49,1571	60,6552	71,0709	84,6964	92,7940	41,5018	27,8636	24,9371
Vapor Space Volume (cu ft):	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233
Vapor Density (lb/cu ft):	0.0402	0.0422	0.0444	0.0475	0.0514	0.0555	0.0590	0.0677	0.0533	0.0485	0.0436	0.0404
Vapor Space Expansion Factor:	0.1490	0.1544	0.1644	0.1707	0.1762	0.1814	0.1869	0.1934	0.1999	0.2064	0.2129	0.2194
Vented Vapor Saturation Factor:	0.5639	0.5506	0.5366	0.5181	0.4962	0.4747	0.4577	0.4368	0.4658	0.5120	0.5416	0.5622
Tank Vapor Space Volume	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233	243,1233
Vapor Space Volume (cu ft):	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000
Tank Diameter (ft):	8,2940	8,2940	8,2940	8,2940	8,2940	8,2940	8,2940	8,2940	8,2940	8,2940	8,2940	8,2940
Effective Diameter (ft):	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000
Vapor Space Outage (ft):	6,0000	6,0000	6,0000	6,0000	6,0000	6,0000	6,0000	6,0000	6,0000	6,0000	6,0000	6,0000
Tank Shell Length (ft):												
Vapor Density	0.0402	0.0422	0.0444	0.0475	0.0514	0.0555	0.0590	0.0677	0.0533	0.0485	0.0436	0.0404
Vapor Molecular Weight (lb/lb-mole):	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3,2423	3,4222	3,6205	3,8992	4,2566	4,6401	4,9679	5,1620	4,4382	3,9956	3,5486	3,2651
Daily Avg. Liquid Surface Temp. (deg. R):	496,5315	499,0865	501,7812	505,3709	509,6850	514,0004	517,4667	516,2063	511,7655	506,5648	500,8183	496,8623
Daily Average Ambient Temp. (deg. F):	24,5500	29,5000	34,5500	41,5000	50,5000	59,5000	67,5000	65,4500	56,2500	45,8500	34,1000	25,8000
Ideal Gas Constant R												
(psia cu ft / (lb-mol-deg R)):	10,731	10,731	10,731	10,731	10,731	10,731	10,731	10,731	10,731	10,731	10,731	10,731
Liquid Bulk Temperature (deg. R):	504,2608	504,2608	504,2608	504,2608	504,2608	504,2608	504,2608	504,2608	504,2608	504,2608	504,2608	504,2608
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	810,6249	1,091,4088	1,443,2612	1,839,2142	2,102,8656	2,367,4687	2,327,4927	2,060,6687	1,768,1457	1,303,0279	873,7616	712,9057
Vapor Space Expansion Factor	0.1490	0.1544	0.1707	0.2126	0.2559	0.3155	0.3489	0.3205	0.2704	0.2217	0.1619	0.1456
Vapor Space Expansion Factor:	25,6746	25,4991	26,8139	31,0747	34,2016	38,3412	39,1599	37,0668	35,7044	31,6184	25,9031	24,9934
Daily Vapor Temperature Range (deg. R):	0.8855	0.9167	1.0112	1.2448	1.4710	1.7684	1.9079	1.7714	1.5884	1.2919	0.9611	0.8668
Daily Vapor Pressure Range (psia):	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Breather Vent Press. Setting Range (psia):												
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3,2423	3,4222	3,6205	3,8992	4,2566	4,6401	4,9679	4,8467	4,4382	3,9956	3,5486	3,2651
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2,8239	2,9877	3,1434	3,3167	3,5721	3,8233	4,0871	4,0256	3,7009	3,3916	3,0943	2,8549
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	3,7094	3,9064	4,1546	4,5615	5,0431	5,5917	5,9950	5,7971	5,2893	4,6835	4,0554	3,7218
Daily Avg. Liquid Surface Temp. (deg. R):	496,5315	499,0865	501,7812	505,3709	509,6850	514,0004	517,4667	516,2063	511,7655	506,5648	500,8183	496,8623
Daily Min. Liquid Surface Temp. (deg. R):	480,1129	482,7119	485,0777	497,6023	501,1346	504,4151	507,6770	506,9321	502,8394	498,6602	494,3426	490,8139
Daily Max. Liquid Surface Temp. (deg. R):	502,9502	505,4614	508,4846	513,1396	518,2354	523,5857	527,2554	525,4805	520,6915	514,4694	507,2941	503,1107
Daily Ambient Temp. Range (deg. R):	30,3000	28,2000	27,7000	31,0000	33,6000	37,6000	39,0000	37,9000	37,9000	35,3000	30,2000	30,0000
Vented Vapor Saturation Factor	0.5639	0.5506	0.5366	0.5181	0.4962	0.4747	0.4577	0.4638	0.4658	0.5120	0.5416	0.5622
Vented Vapor Saturation Factor:												
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3,2423	3,4222	3,6205	3,8992	4,2566	4,6401	4,9679	4,8467	4,4382	3,9956	3,5486	3,2651
Vapor Space Outage (ft):	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000	4,5000
Working Losses (lb):	1,9106	2,0166	2,1335	2,2977	2,5084	2,7344	2,9275	2,8561	2,6154	2,3545	2,0911	1,9241
Vapor Molecular Weight (lb/lb-mole):	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000	66,0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3,2423	3,4222	3,6205	3,8992	4,2566	4,6401	4,9679	4,8467	4,4382	3,9956	3,5486	3,2651
Net Throughput (gall/mo.):	375,0000	375,0000	375,0000	375,0000	375,0000	375,0000	375,0000	375,0000	375,0000	375,0000	375,0000	375,0000
Annual Turnovers:	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000
Turnover Factor:	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Tank Diameter (ft):	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000	9,0000
Working Loss Product Factor:	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)- (Continued)

Total Losses (lb):	27.3369	26.4300	32.7765	40.4568	51.6655	63.3896	73.9984	67.5525	55.4094	43.8564	28.9547	26.8612
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TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January , February , March , April , May , June , July , August , September , October , November , December

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Gasoline (RVP 10)	28.37	511.32	539.69